UNITED STATES DISTRICT COURT
EASTERN DISTRICT OF NEW YORK
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THE NATIONAL ASBESTOS)WORKERS MEDICAL FUND,)
et al.,))
Plaintiffs,))
vs.) No. 98 Civ. 1492 (JBW)
)
PHILIP MORRIS INCORPORATED,)et al.,)
) Defendants.)
))

DEPOSITION OF
NEAL L. BENOWITZ, M.D.

January 18, 2000

REPORTED BY: TERRI NESTORE, CRR, RMR, CSR 5614
(JOB #05-87783)

UNITED STATES DISTRICT COURT
EASTERN DISTRICT OF NEW YORK
--oOo--

BLUE CROSS AND BLUE SHIELD)OF NEW JERSEY, INC., et al.,)
) Plaintiffs,)
) vs.) No.
98 Civ. 3287
)PHILIP MORRIS, INCORPORATED,)
et al.,))
Defendants.))
)

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4 ROBERT A. FALISE, LOUIS KLEIN,)JR., FRANK MACCHIAROLA,)
5 CHRISTIAN E. MARKEY, JR.)AS TRUSTEES)
6) Plaintiffs,)
7) vs.) No. 99
CV 7392 (JBW)
8)THE AMERICAN TOBACCO COMPANY;)
9 R.J. REYNOLDS TOBACCO COMPANY;)B.A.T INDUSTRIES, PLC; BROWN &)
10 WILLIAMSON TOBACCO CORPORATION;)PHILIP MORRIS INCORPORATED;)
11 LIGGETT GROUP, INC.;)LORILLARD TOBACCO COMPANY,)
12 Defendants.))
13
14 DEPOSITION OF
15 NEAL L. BENOWITZ, M.D.
16
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19 (JOB #05-87783)
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15 Mintzer, Esq., 12/28/99 13
16 2 5-page BMJ article, Mortality in Relation to Tar Yield of
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17 Prospective Study of Four Cohorts, 12/9/95
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18 3 4-page Lancet article, Is There a Future
19 for Lower-Tar-Yield Cigarettes, 11/16/85 . 39
20 4 28-page works of A.A. Shmuk, The Chemistry and Technology of
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21 5 10-page works of A.A. Shmuk, The
22 Chemistry and Technology of Tobacco 64
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24 7 10-page document, Tobacco, Experimental
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7 February 1952 78
8 11 24-page document, Issue No. 23 - June 1988 - The Significance of pH in Tobacco
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10 12 22-page article, Gender Differences in the Pharmacology of Nicotine Addiction
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12 13 10-page article, Cigarette Smoking Among Adults - United States, 1993, JAMA,
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21 National Comorbidity Survey, 1994 105
22 18 8-page article, Smoking as a Possible Inhibitor of Arousal, 1978 107
23 19 15-page article, Long-Term Switching to
24 Low-Tar Low-Nicotine Cigarettes, 1982 ... 109
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7 22 14-page article, Smoking Behaviour, Physiological and Psychological
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9 23 9-page article, Prying Open the Door to the Tobacco Industry's Secrets About
10 Nicotine, JAMA, 10/7/98 184
11 24 9-page article, Nicotine and Addiction, The Brown and Williamson Documents,
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13 25 7-page article, Smoking and Nicotine Dependence in Young Adults: Differences
14 between Blacks and Whites, 1993 190
15 26 5-page article, Nicotine Metabolism and Intake in Black and White Smokers, JAMA,
16 7/8/98 195
17 27 5-page article, Racial and Ethnic Differences in Serum Cotinine Levels of
18 Cigarette Smokers, JAMA, 7/8/98 202
19 28 9-page article, Arterial Nicotine Kinetics During Cigarette Smoking and
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24
25

1 UNITED STATES DISTRICT COURT
2 EASTERN DISTRICT OF NEW YORK
3 --oOo--
4 THE NATIONAL ASBESTOS)WORKERS MEDICAL FUND,)
5 et al.,))
6 Plaintiffs,))
7 vs.) No. 98 Civ. 1492 (JBW))
8 PHILIP MORRIS INCORPORATED,)et al.,)
9) Defendants.)
10))
11 BLUE CROSS AND BLUE SHIELD)OF NEW JERSEY, INC., et al.,)
12) Plaintiffs,)
13) vs.) No. 98 Civ. 3287
14)PHILIP MORRIS, INCORPORATED,)
15 et al.,))
16 Defendants.))
17)ROBERT A. FALISE, et al.,)

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18) Plaintiffs,)
19) vs.) No. 99 CV 7392
(JBW)
20)THE AMERICAN TOBACCO)
21 COMPANY, et al.,))
22 Defendants.))
23
24 -oOo-
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1 BE IT REMEMBERED that, pursuant to Notice,
2 and on Tuesday, January 18, 2000, commencing at 11:08
3 a.m. thereof, at the DoubleTree Hotel, 835 Airport
4 Boulevard, Point Reyes Suite, Burlingame, California
5 94010, before me, TERRI NESTORE, CRR, RMR, a Certified
6 Shorthand Reporter, personally appeared
7 NEAL L. BENOWITZ, M.D.
8
9 called as a witness by the defendants who, having been
10 first duly sworn, was examined and testified as
11 follows:
12 -oOo-
13 MR. SMITH: Before we begin, I'd just like
14 to make a quick record. My understanding is that this
15 case has not been cross-noticed for the Falise case.
16 We still haven't received transcripts of
17 Dr. Benowitz' testimony in Childress,
18 C-H-I-L-D-R-E-S-S, Jones, and Cooper, which are all
19 cases in which Dr. Benowitz testified about asbestos
20 and tobacco smoking.
21 Also, my understanding is that the
22 plaintiffs in Falise made no effort to cross-notice
23 the deposition until January 13th. Despite the fact
24 that Dr. Benowitz' deposition had been scheduled a
25 couple times in the past, they made no effort to
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1 cross-notice it then.
2 Finally, we have received no indication of
3 what documents Dr. Benowitz will be relying on in the
4 Falise case, other than those documents that are cited
5 in his expert report in Falise.
6 MR. STOLPER: On behalf of the plaintiffs
7 in Falise, my name is Michael Stolper and I'll respond
8 to Mr. Smith's statement, to the extent we believe
9 that there has been sufficient cross-notice of
10 Dr. Benowitz in the Falise matter, based on the number
11 of times that this deposition has been scheduled and
12 rescheduled. And in response to his statement about
13 documents relied upon by Dr. Benowitz, he can pursue
14 that line of inquiry with Dr. Benowitz at today's
15 deposition. And for the record, I'd like to note that
16 no request has been made of the plaintiffs in Falise
17 for any transcripts that are identified in
18 Dr. Benowitz' report that was provided to the
19 defendants in August of 1999.
20 MR. SMITH: I think that's incorrect, in
21 part. My understanding is that Todd Gale asked you
22 for documents -- for the transcripts from the asbestos
23 cases in which Dr. Benowitz had testified, in your

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24 conversation on Thursday, the 13th.
25 MR. STOLPER: Right. In those
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1 conversations where we indicated, once again, that
2 we'd be taking these depositions; conversations which
3 you choose to ignore. So without further ado.
4 EXAMINATION BY MR. SMITH
5 MR. SMITH: Q. Good morning, Dr. Benowitz.
6 A. Good morning.
7 Q. Finally get around to you.
8 I was wondering if you brought any
9 documents with you to give us today?
10 A. No.
11 (Defendants' Exhibit 1 was
12 marked for identification)
13 MR. SMITH: Q. I'm handing you a copy of
14 what's been marked Exhibit 1. It's a copy of the
15 deposition notice from the National Asbestos Workers
16 case. I was wondering if you had seen that before?
17 A. I don't know. I may have.
18 Q. If you turn to the last page, there's a
19 list of different categories of documents that the
20 defendants in National Asbestos Workers asked you to
21 bring to the deposition. Do you see that?
22 A. Yes.
23 Q. Have you seen that before or not?
24 A. Well, I certainly have seen things exactly
25 like this before. I'm not sure if I saw it for this
page 13
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1 case or not.
2 Q. At any rate, you don't have any documents
3 that you've brought with you in response to that
4 deposition notice today?
5 A. No. All the documents -- the only files
6 that I have for this case were copies of defense
7 expert reports, which you would have, and everything
8 else are things that were discussed in prior
9 depositions.
10 Q. Would you mind providing us with copies of
11 the defense expert reports you've reviewed in National
12 Asbestos Workers?
13 A. Sure. I'm happy to do that.
14 Q. And the plaintiffs' lawyers never asked you
15 to provide us with those before today?
16 MR. FLERLAGE: No, we didn't, for the same
17 reason the doctor just said. We thought you had them.
18 For the record, we have provided you with
19 all documentation that was consistent with the most
20 recent report provided by Dr. Benowitz, which I
21 believe is dated July 9th, 1998, which was provided to
22 you under the heading of the National Asbestos Workers
23 Medical Fund vs. Philip Morris Incorporated, and that
24 was done I guess a number of times, but we believe you
25 have all documents that the federal rules require us
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1 to provide you in support of this deposition.
2 MR. SMITH: Q. I think you've testified,

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3 previously, Dr. Benowitz, that you're familiar with
4 Jed Rose's work.
5 A. Yes.
6 Q. Do you recognize Rose as an authority on
7 sensory research?
8 MR. FLERLAGE: Objection.
9 THE WITNESS: He's certainly done a lot of
10 work in that area.
11 MR. SMITH: Q. And he's published a number
12 of articles on the sensory effects of cigarette smoke?
13 A. Yes.
14 Q. Those are articles that you think are valid
15 and reliable?
16 MR. FLERLAGE: Objection.
17 For what purpose?
18 THE WITNESS: I certainly have used them in
19 forming my thinking and my opinions. Every scientific
20 article has to be reviewed for its own strengths and
21 weaknesses, but in general Dr. Rose does good work.
22 MR. SMITH: Q. And do you recognize the
23 work of Hans Eysenck, E-Y-S-E-N-C-K?
24 Are you familiar with his work?
25 A. Well, that's personality research on
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1 smoking which was done many years ago, and that's been
2 a little bit problematic. I don't rely on that for my
3 opinions very much. It's an area that has been quite
4 controversial.
5 Q. Why do you say that Hans Eysenck's research
6 is controversial?
7 A. Well, that research really linked
8 personality types to smoking, and there's been
9 conflicting research since then. There is a lot of
10 questions about if there are links of personality
11 types, and most of the work on personality really
12 looks at things like risk taking and rebelliousness,
13 rather than introversion and extroversion; stuff that
14 Eysenck talked about.
15 Even when you consider those personality
16 types, they appear to account for a relatively small
17 percentage of the variance of individual variation in
18 addiction. So it's just not been an area that has
19 been a main focus of my work or interest.
20 Q. But you've reviewed a number of articles by
21 Dr. Eysenck?
22 A. Well, at least one.
23 I think he wrote one classic article that
24 talked about personality and smoking.
25 Q. Are you familiar with Dr. Andrew Littman,
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1 L-I-T-T-M-A-N? His work?
2 A. Not by name. I'd have to see the work.
3 Q. You don't recognize Dr. Littman as an
4 authority in the area of smoking or addiction?
5 MR. FLERLAGE: Objection.
6 THE WITNESS: I don't recognize the name.
7 I'd have to link it to a piece of work.
8 MR. SMITH: Q. Are you familiar with Ian
9 Hindmarch's work, H-I-N-D-M-A-R-C-H?

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10 A. I believe he is -- if it's who I think he
11 is, I think he's a cognitive psychologist that works
12 in the UK, and if it's the person I think it is -- I'm
13 going to have to look at the article -- he's done some
14 work that looked at the effects of cigarette smoking
15 on the performance of various tasks and cognitive
16 effects of smoking.
17 Q. And you've reviewed a number of articles by
18 Dr. Hindmarch?
19 MS. McDEVITT: Object to form.
20 THE WITNESS: I've seen one of his
21 articles. I've seen him speak at meetings.
22 MR. SMITH: Q. Are you familiar with
23 Dr. David Egilman's work?
24 A. I am not familiar with the name.
25 Q. You don't recognize Dr. Egilman as an
page 17
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1 authority in the area of cigarette smoking?
2 MR. FLERLAGE: Objection.
3 THE WITNESS: I don't recognize the name.
4 I'd have to see the work.
5 MR. SMITH: Q. You're not familiar with
6 any of Dr. Egilman's articles?
7 A. I don't know. I don't know. I read a lot
8 of articles, and in some cases where a person has had
9 a body of research, I connect it to the researcher.
10 If it's a single article that I read, I may
11 recognize the article but I would not remember the
12 author, so I really can't answer your question.
13 Q. So sitting here today you can't name any
14 tobacco-related articles by Dr. Egilman?
15 A. Correct.
16 Q. You're familiar, of course, with Dietrich
17 Hoffman's work?
18 A. Yes.
19 Q. And you recognize Dr. Hoffman as an
20 authority on how cigarette design parameters influence
21 the health risks associated with smoking?
22 MR. FLERLAGE: Objection.
23 THE WITNESS: Well, he has published a lot
24 about that and knows a lot about that.
25 MR. SMITH: Q. And you've reviewed his
page 18
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1 work in that area?
2 A. Yes.
3 Q. Are you familiar with Karl Battig's work,
4 B-A-T-T-I-G?
5 A. Yes.
6 Q. Do you recognize Dr. Battig as an authority
7 on nicotine and addiction?
8 MR. FLERLAGE: Objection.
9 THE WITNESS: Same thing, when you say
10 "authority." In general, that's not a word that I
11 like to use in science, because people write articles
12 and some of them are well done and some aren't, and I
13 really think that the research has to be looked at by
14 the piece of work; but certainly he's well known and
15 I've read his work.
16 MR. SMITH: Q. So Dr. Battig is well known

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17 for writing in the area of nicotine and addiction?
18 MR. FLERLAGE: Objection. Leading.
19 THE WITNESS: Yes.
20 MR. SMITH: Q. Are you familiar with
21 Robert Stepney's work?
22 A. Yes.
23 Q. Do you recognize Dr. Stepney as someone who
24 has written a number of articles in the area of smoker
25 compensation?
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page 20
1 A. Yes.
2 Q. And you're familiar with his work on smoker
3 compensation?
4 A. Yes.
5 Q. You recognize Michael Russell as an
6 authority on smoker compensation?
7 MR. FLERLAGE: Objection.
8 THE WITNESS: Same comment about
9 "authority," but he has published a lot on that
10 question.
11 MR. SMITH: Q. He's widely recognized as
12 one of the leading researchers in the area of smoker
13 compensation?
14 MR. FLERLAGE: Objection.
15 THE WITNESS: Yes.
16 MR. SMITH: Q. Do you recognize Nicholas
17 Wald, W-A-L-D, as someone who's written a lot on
18 low-tar cigarettes?
19 A. Yes.
20 Q. He's a recognized authority in the area of
21 low-tar cigarettes?
22 MR. FLERLAGE: Objection.
23 THE WITNESS: Again, he's published a lot
24 in the area.
25 MR. SMITH: Q. He's also published on the
page 20
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page 21
1 issue of smoker compensation?
2 A. Yes.
3 Q. Will you be testifying about how entities
4 in the medical communities, such as the plaintiff
5 medical funds and the National Asbestos Workers case,
6 relied on tobacco company statements about smoking and
7 health?
8 MS. McDEVITT: Object to form.
9 Object to the form.
10 THE WITNESS: I'm not sure.
11 I suppose that could come up. My main
12 focus -- what I expect to testify on are the same
13 questions I've testified on before, which is really
14 about nicotine addiction, about the issue of viewing
15 nicotine, the industry viewing nicotine as a drug, the
16 issue of standardizing nicotine exposures, the low-tar
17 issues. I've read documents about the industry's
18 statements about smoking and health. I don't know if
19 I'm going to be asked to testify about it or not.
20 MR. SMITH: Q. But as of today that's not
21 something you're planning to testify about, the
22 reliance on tobacco company statements on smoking and
23 health?

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24 A. It could come up with respect to the issue
25 of why would a smoker continue to smoke, despite
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page 22
1 hearing warnings about the risks of smoking?
2 Because one of the issues that comes up
3 there is is a person getting conflicting information,
4 and if they're addicted, if they get conflicting
5 information, they will often seize upon what keeps
6 them most comfortable. And if one side says smoking
7 is bad for you and if one side says smoking is not bad
8 for you, and you want to smoke, you'll tend to believe
9 the side that says it's not bad for you.
10 So it could come up in that context.
11 Q. But as of now that's not something that
12 you've discussed testifying about with the plaintiffs'
13 attorneys?
14 A. Not specifically, but it could come up.
15 Q. In my next several questions I'm going to
16 refer to the various populations covered by the
17 plaintiff medical funds in the Blue Cross and National
18 Asbestos Workers cases as the individual smoker
19 populations. Is that all right?
20 MR. FLERLAGE: Do you understand what...
21 Can you...
22 THE WITNESS: I guess I'll understand when
23 you ask the question. I'm not sure.
24 MR. FLERLAGE: Well, maybe.
25 MR. SMITH: Q. By way of background --
page 22
Benowitz, Neal Deposition
page 23
1 MR. FLERLAGE: Let me just object to the
2 question and ask you to rephrase it.
3 MR. SMITH: Q. By way of background, do
4 you know that in the National Asbestos Workers cases
5 the plaintiffs are a number of medical funds that
6 insure workers; do you understand that?
7 A. Well, I did not really know who the
8 plaintiffs were.
9 Q. So you can't really name any of the
10 plaintiffs in the National Asbestos Workers case?
11 A. No.
12 Q. And in Blue Cross you understand that Blue
13 Cross is an insurer, right?
14 A. Yes, I understand that Blue Cross...
15 Q. And they insure individual smokers, right?
16 A. Yes.
17 Q. And similarly, in National Asbestos
18 Workers, the plaintiffs are a group of medical funds
19 that insure individual smokers.
20 A. Okay.
21 Q. So in my next several questions I'm going
22 to ask you a variety of questions about the individual
23 smokers that are insured by the plaintiffs in Blue
24 Cross and National Asbestos Workers.
25 A. Okay.
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1 Q. And you understand that?
2 A. Yes.

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3 Q. You've conducted no surveys of the
4 individual smoker populations?
5 A. That's correct.
6 Q. You haven't gathered any data regarding the
7 individual smoker populations?
8 A. No.
9 Q. You haven't done any research involving the
10 actual individual smokers in these suits?
11 A. No.
12 Q. You don't know the demographics of the
13 individual smoker populations?
14 A. No.
15 Q. You don't know the racial or ethnic
16 breakdown of the individual smoker populations?
17 A. No.
18 Q. You don't know the smoking prevalence rates
19 in the individual smoker populations?
20 A. No.
21 Q. You haven't calculated the percentage of
22 the individual smoker populations that would not have
23 smoked but for the defendants' alleged misconduct?
24 A. Correct.
25 Q. You haven't calculated the percentage of
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1 the individual smoker populations that would have quit
2 smoking but for the defendants' alleged misconduct?
3 A. No.
4 Q. You have no data on why individuals in the
5 individual smoker populations started to smoke?
6 A. No.
7 Q. Do you know the educational background of
8 any of the individual smokers?
9 A. No.
10 Q. Do you know the medical history of any of
11 the individual smokers?
12 A. No.
13 Q. Do you know the smoking history of any of
14 the individual smokers?
15 A. No.
16 Q. Do you know the brands of cigarettes any of
17 the individual smokers actually smoked?
18 A. No.
19 Q. Do you have any data indicating whether the
20 individual smokers smoked filtered or unfiltered
21 cigarettes?
22 A. No.
23 Q. Have you calculated what percentage of the
24 individual smoker populations had health concerns
25 about smoking?
page 25
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1 A. No.
2 Q. Do you have any data on what the individual
3 smokers thought about their own personal chances of
4 getting a disease as a result of smoking?
5 A. No.
6 Q. Do you have any data from the individual
7 smoker populations regarding exposure to tobacco ads?
8 A. No.
9 Q. You don't know what percentage of

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10 individual smoker populations were subject to exposure
11 to any ad for tobacco products?
12 A. No.
13 Q. You don't know what percentage of the
14 individual smoker population began smoking when they
15 were underage?
16 A. No.
17 Q. Do you have any survey data concerning the
18 awareness of the individual smoker population
19 concerning the health risks associated with smoking?
20 A. No.
21 Q. Can you identify anyone in the individual
22 smoker population who saw the 1954 Frank Statement to
23 Cigarette Smokers?
24 A. No.
25 Q. Can you identify anyone in the individual
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1 smoker population who saw any statement made by The
2 Tobacco Institute regarding smoking and health?
3 A. No.
4 Q. Can you identify any individual in the
5 individual smoker population who saw any statement
6 made by any of the defendant tobacco companies
7 regarding smoking and health?
8 A. No.
9 Q. And I guess your statements in answer to
10 those questions would be the same for the individual
11 smoker population in the Falise case also?
12 A. Correct.
13 Q. Have you conducted a literature search,
14 such as a Medline search, of the published scientific
15 literature for articles written by scientists at Brown
16 & Williamson?
17 A. No.
18 Q. Have you conducted a search of the public
19 scientific literature for articles written by
20 scientists at any of the tobacco companies?
21 A. By name? By employment? No.
22 I do periodic searches on topics, but not
23 by author or where they're from.
24 Q. So I take it that you haven't specifically
25 done a literature search looking for articles by
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1 people that are employed at the tobacco companies?
2 A. Correct.
3 Q. Have you done a search of the public
4 scientific literature to see what research has been
5 funded by the tobacco companies directly and not
6 through CTR?
7 A. No.
8 Q. Have you conducted a search of the
9 published scientific literature for articles on smoker
10 compensation published from 1960 through 1980?
11 A. I have a file that includes articles in
12 that time period. I don't know that I've searched it
13 in the way that you suggest by that time interval, but
14 I certainly do have articles that discuss compensation
15 in -- within that time period.
16 Q. You have not undertaken a systematic search

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17 of the published literature, though, for articles on
18 smoker compensation between 1960 and 1980?
19 MR. FLERLAGE: Objection.
20 MR. STOLPER: Objection.
21 THE WITNESS: That's right.
22 MR. SMITH: Q. Your answer to the question
23 was "yes"?
24 A. Not looking -- I have not conducted a
25 search with those parameters.
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1 Q. You haven't conducted any literature search
2 for articles on smoker compensation between 1960 and
3 1980, right?
4 MR. FLERLAGE: Objection.
5 Asked and answered.
6 MR. STOLPER: Objection.
7 MS. McDEVITT: Objection.
8 THE WITNESS: When I've searched for
9 compensation it would have included those, but I
10 didn't specify just those years in particular.
11 MR. SMITH: Q. Have you conducted a
12 literature search for popular publications, such as
13 magazine/newspaper articles on smoker compensation?
14 A. No.
15 Q. Have you conducted a search of the
16 published scientific literature for articles on
17 nicotine pharmacology that were published before the
18 surgeon general's report came out in 1964?
19 A. Again, I have reviewed occasional articles
20 that come in as part of another body of literature,
21 but not specifically looking for articles based on the
22 date of publication.
23 Q. Have you conducted a search through the
24 published scientific literature for articles on
25 nicotine and addiction that were published prior to
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1 the surgeon general's report in 1964?
2 A. Same answer as my last question.
3 Q. You're saying that you haven't undertaken a
4 systematic search for nicotine addiction articles
5 before 1964, but that you have seen an occasional
6 article?
7 MR. FLERLAGE: Objection. That's not what
8 he said. Mischaracterization.
9 THE WITNESS: I've searched for effects of
10 nicotine, including addiction, but never within
11 constraints of specific years.
12 MR. SMITH: Q. Have you conducted a search
13 for popular articles or newspaper articles or other
14 general media publications on nicotine and addiction
15 published before 1988?
16 A. No.
17 Q. Have you conducted a search of the
18 published scientific literature for articles on the
19 effects of pH in cigarettes published before 1988?
20 A. No.
21 Q. Have you conducted a search of popular
22 publications or other general media publications for
23 articles on the effects of pH in cigarettes published

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24 before 1988?
25 A. No.

1 MR. FLERLAGE: Objection.
2 MR. STOLPER: Objection.
3 MR. SMITH: Q. Have you conducted a search
4 of the scientific literature for articles on cigarette
5 designs published before the surgeon general's report
6 came out in 1981?
7 A. Again, not specifically within those time
8 constraints.
9 Q. Have you conducted a literature search for
10 popular publications or other general media
11 publications on cigarette design?
12 MR. STOLPER: Objection.
13 THE WITNESS: No.
14 MR. SMITH: Q. Have you conducted a
15 literature search for popular publications or other
16 general media publications on the health effects of
17 smoking published before 1964?
18 MR. STOLPER: Objection.
19 THE WITNESS: No.
20 MR. SMITH: Q. Have you done any research
21 on what the US Public Health Service was telling
22 smokers about the health hazards of smoking before
23 1964?
24 MR. FLERLAGE: Objection.
25 THE WITNESS: I have scientific articles

1 that came from the National Cancer Institute, but I've
2 never looked at public information documents.
3 MR. SMITH: Q. Would you mind providing us
4 with copies of those National Cancer Institute
5 articles that you have that were published before
6 1964?
7 A. Oh, before '64?
8 No, I don't know of anything before 1964.
9 Q. Then you've undertaken no research to
10 determine whether there were statements by the US
11 Public Health Service before 1964 on the health
12 effects of smoking?
13 A. That is correct.
14 Q. But you wouldn't dispute the fact that the
15 public health service may have made such statements in
16 the 1940s and 1950s warning of the dangers of
17 cigarette smoking?
18 MR. FLERLAGE: Objection. Wait a minute.
19 Objection to form. Ask you to rephrase.
20 THE WITNESS: I don't know. I don't recall
21 them. It's possible. I just don't know.
22 MR. SMITH: Q. Would it surprise you if
23 there were statements by the Public Health Service in
24 the 1940s and 1950s warning of the health effects of
25 smoking?

1 MR. FLERLAGE: Objection.
2 MS. McDEVITT: Objection.

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3 MR. FLERLAGE: I'll ask you to show him the
4 article, if you have one.
5 THE WITNESS: Would it surprise me? No.
6 There have been concerns by various people for many
7 years, but I don't know what the... the US Public
8 Health Service policy was prior to this, the first
9 surgeon general's report. I just don't know that.
10 MR. SMITH: Q. Have you visited the
11 Minnesota depository to look at any of the tobacco
12 companies documents that are stored in the depository?
13 A. No.
14 Q. Have you looked at any tobacco company
15 documents on the Internet?
16 A. No.
17 Q. When was the last time you reviewed a
18 tobacco company document you had not previously seen
19 before?
20 A. I don't think I've seen any new documents
21 since the deposition that I took in the state of
22 Washington in the Attorney General's case.
23 Q. Do you know what the date of that was,
24 approximately? The year?
25 A. Must have been two years ago.
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1 Q. Have you done any research on what
2 information tobacco company scientists provided at
3 public scientific research conferences?
4 MR. FLERLAGE: Objection. If any.
5 THE WITNESS: Only through my own personal
6 involvement in those matters where scientists were
7 there, but I've never systematically looked at that
8 information.
9 MR. SMITH: Q. You're not a statician, is
10 that correct?
11 A. Statistician?
12 Q. Yes, a statistician.
13 A. No.
14 Q. You're not a historian?
15 A. No.
16 Q. You wouldn't consider yourself an expert on
17 the history of science?
18 A. Correct.
19 Q. You're not an expert on government
20 regulations governing tobacco advertising?
21 A. Correct.
22 Q. You're not an expert on scientific polling?
23 A. Correct.
24 (Defendants' Exhibit 2 was
25 marked for identification)
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1 MR. SMITH: Q. I'm handing you a copy of
2 an article that's being marked as Exhibit No. 2, which
3 is an article by Jin-Ling Tang, T-A-N-G, Nicholas
4 Wald, and others entitled Mortality in Relation to Tar
5 Yield of Cigarettes: A Prospective Study of Four
6 Cohorts, which was published in the British Medical
7 Journal in 1994.
8 Do you recognize the --
9 MR. STOLPER: Let me interject.

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10 Do you have copies for...
11 MR. SMITH: No, I didn't bring four copies
12 for all the lawyers, so -- I can give you two copies
13 for the lawyers, if you want, but I don't think I'm
14 required to bring every --...
15 MR. FLERLAGE: I'll just look here and you
16 guys can share. For purposes of the deposition,
17 anyway.
18 MR. SMITH: Q. Do you recognize the
19 British Medical Journal as a respected peer review
20 publication?
21 A. Yes.
22 Q. You see in the abstract the objective of
23 the Wald study was to investigate the relationship
24 between tar yield of manufactured cigarettes and
25 mortality from smoking-related diseases, is that
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1 correct?
2 MR. FLERLAGE: Objection. If you need time
3 to review it, take the time.
4 THE WITNESS: Yeah.
5 Well, what was your question, again?
6 MR. SMITH: Q. I'm just asking you if you
7 can look at the abstract and see that this article,
8 the Wald study, is an investigation on the
9 relationship between tar yield of manufactured
10 cigarettes and mortality from smoking-related
11 diseases.
12 A. Yes.
13 Q. In the results section of the abstract, do
14 you see that the Wald article found that mortality
15 from smoking-related diseases consistently decreased
16 with decreasing tar yield?
17 A. Yes.
18 Q. The Wald study reports data indicating that
19 mortality from smoking-related diseases consistently
20 decreased with decreasing tar yield?
21 A. Well, I don't understand what you meant by
22 "consistently decreased," but they did show a
23 statistically significantly lower risk in people who
24 were smoking cigarettes with lower tar yields.
25 Q. In the first full paragraph in the second
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1 column, you see that the Wald study states that, "It
2 is reasonably certain that lower tar yields are
3 associated with reduced mortality from lung cancer"?
4 A. Yes.
5 Q. The Wald study found that lower tar yield
6 cigarettes led to reduced mortality from lung cancer?
7 A. Yes.
8 Q. If you turn to the last page of the Wald
9 study, under the conclusion it states, "About a
10 quarter of deaths from lung cancer, coronary heart
11 disease, and possibly other smoking-related diseases
12 could be avoided by switching from higher tar
13 cigarettes to lower tar ones."
14 A. Yes.
15 Q. The Wald study found approximately a 25
16 percent decrease in mortality from lung cancer and

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17 coronary heart disease caused by switching from higher
18 tar to low-tar cigarettes.
19 A. Yes.
20 Q. The next sentence states, "This is
21 consistent with studies of compensatory smoking;
22 switching to cigarettes of half the tar yield reduces
23 tar intake by about a quarter rather than a half."
24 A. Yes.
25 Q. The Wald study acknowledges that smokers
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1 compensate when smoking low-tar cigarettes?
2 A. Yes.
3 Q. The Wald study acknowledges that because of
4 compensatory smoking, reducing the tar yield by half
5 reduces tar intake by about a quarter, rather than a
6 half?
7 A. Right.
8 That's what's stated, that's correct.
9 Q. So in other words, the Wald study indicates
10 that compensation is incomplete?
11 MR. FLERLAGE: Objection.
12 THE WITNESS: That's what he states, that's
13 correct.
14 MR. SMITH: Q. The Wald study indicates
15 that the findings it reports on the reduction in
16 mortality accompanying switching to low-tar cigarettes
17 are consistent with other findings indicating that
18 smokers do not fully compensate for reductions in tar?
19 A. Yes.
20 MR. SMITH: I'm handing you a copy of
21 another article --
22 MR. FLERLAGE: Objection. Move to strike
23 all the testimony on the Wald study as having been
24 established by inappropriate predicate. We don't know
25 who Wald was, we don't know what the study's about, we
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1 don't know whether it's authoritative. We don't know
2 anything about it, except the preliminary questions
3 you asked, which are insufficient.
4 MR. SMITH: I think that's a speaking
5 objection.
6 MR. FLERLAGE: I don't think so. I think
7 it's an improper predicate, is what it is.
8 MR. SMITH: Q. You've recognized Dr. Wald
9 as someone who has written a lot in this area, is that
10 correct, Dr. Benowitz?
11 MR. FLERLAGE: Objection.
12 THE WITNESS: I've read Dr. Wald, yes.
13 (Defendants' Exhibit 3 was
14 marked for identification)
15 MR. SMITH: Q. I'm handing you a copy of
16 another article that's been marked Exhibit 3, and it's
17 an article that's been written by participants of an
18 international conference on low-tar cigarettes
19 entitled Is There a Future for Lower-Tar-Yield
20 Cigarettes?
21 A. Yes.
22 Q. And it is published in The Lancet?
23 A. Yes.

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24 Q. And The Lancet, that's another respected
25 peer review publication?
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1 A. Yes.
2 Q. You were one of the participants at the
3 conference on low-tar cigarettes that produced The
4 Lancet article?
5 A. Yes.
6 Q. Robert Stepney also participated in the
7 conference you attended on low-tar cigarettes?
8 A. Yes.
9 Q. The article states in the first paragraph,
10 "An international workshop was held to consider
11 whether the policy adopted in many countries to
12 encourage the decline in cigarette tar yields was
13 beneficial," is that correct?
14 A. Yes.
15 Q. Many countries adopted the policy of
16 encouraging the decline in cigarette tar yields to
17 reduce the risk of disease?
18 A. Yes.
19 Q. Periodically you and other members of the
20 public health community reviewed whether government
21 policies to reduce tar yields were beneficial, is that
22 correct?
23 A. I'm not sure about periodically. It did
24 happen on this occasion. I don't know. And there was
25 one occasion in the UK where it happened.
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1 I'm not aware of any other occasions where
2 this question was looked at by a body of scientists.
3 Q. Individual scientists have acted on their
4 own to look at the question of whether low-tar
5 cigarettes are beneficial?
6 A. Yes.
7 Or not beneficial, but less hazardous.
8 Q. In the third paragraph, in the first
9 column, the article states, "Since the early 1970s,
10 the US and UK authorities have also recommended that
11 people who are unwilling or unable to give up smoking
12 switch to cigarettes of lower tar and nicotine yield,
13 in the expectation that the adverse health effects of
14 smoking could be reduced," but not eliminated, is that
15 correct?
16 A. Yes.
17 Q. You agree that since the early 1970s public
18 health authorities in the United States recommended
19 that people who are unwilling or unable to give up
20 smoking switch to cigarettes of lower tar and nicotine
21 yield?
22 A. Yes.
23 Q. Public health authorities adopted low-tar
24 policies in the expectation that the adverse health
25 effects of smoking might be reduced, is that correct?
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1 A. Yes.
2 Q. The article then states, "The policy was

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3 never intended to be an alternative to encouraging
4 smokers to give up smoking," right?
5 A. Yes.
6 Q. You agree that the public health policy of
7 encouraging reductions in tar yield was never intended
8 to be an alternative to encouraging smokers to give up
9 smoking?
10 A. Yes.
11 Q. The article then states about the policy,
12 "Nor was it expected that the benefits of smoking
13 lower delivery cigarettes would be as great as those
14 to be derived from stopping smoking altogether."
15 A. Yes.
16 Q. You agree that the public health policy of
17 encouraging reductions in tar yields was not expected
18 to give benefits that were as great as those to be
19 derived from stopping smoking altogether?
20 A. Yes.
21 Q. In the second column, headed Lung Cancer,
22 you see the article states, "The carcinogenic activity
23 of tobacco smoke seems to reside in the tar, so it is
24 reasonable to expect that cigarettes yielding less tar
25 will be less likely to cause lung cancer."
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1 A. Yes.
2 Q. You agree that the public health policy of
3 encouraging reductions in tar delivery was based on
4 the commonsense idea that less exposure to tar would
5 reduce the risk to exposure to lung cancer?
6 A. Yes.
7 Q. The article further states, "However, the
8 relation may not be straightforward. One cause of
9 uncertainty involves 'compensatory' smoking -- the
10 tendency of smokers to increase the amount of smoke
11 inhaled from a cigarette of lower tar yield and, to a
12 lesser extent, to increase the number of cigarettes
13 smoked," is that correct?
14 A. Um-hum, yes.
15 Q. You agree that public health authorities
16 took into account the fact that smokers compensate,
17 when suggesting the policy of encouraging reductions
18 in tar deliveries?
19 A. Well, it was understood that there was some
20 compensation. The extent of it was not necessarily
21 understood.
22 And I have to say, about this article and
23 the other article, they're dealing with two different
24 kinds of cigarettes. It's actually talked about here.
25 This is the cigarette -- the old 35
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1 milligram tar cigarette, which were most of the
2 unfiltered cigarettes, down to the modern, say, 15
3 milligram tar cigarettes, are a different sort of
4 breed of cigarettes than modern cigarettes, where the
5 high yield levels are 15 to 17 milligrams of tar and
6 it goes down from there. And the biggest effects of
7 both of these studies is really going from the high
8 yield 20, 30 milligram tar cigarettes which were
9 available back in the '50s and '60s and maybe early

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10 '70s, down to the modern cigarette.
11 So all of these studies have the concern
12 that they may not be relevant to the cigarettes that
13 have been available for the past 20 years which are,
14 say, from 18 or maybe 20 milligrams, at most, tar and
15 below. And it's actually commented on in here.
16 That's something we talked about at this meeting.
17 Q. Move to strike as nonresponsive.
18 If you turn to page 1112, in the second
19 column, in the last full paragraph, the article
20 states, "The importance of compensatory smoking should
21 not be overemphasized. Even if further reductions in
22 tar yields produce proportionally less benefit, any
23 benefit would be worthwhile."
24 MR. FLERLAGE: Objection. Leading.
25 THE WITNESS: What's your question?
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1 MR. SMITH: Just for the record, I think
2 it's inappropriate to make objections based on leading
3 questions, since Dr. Benowitz is an adverse witness.
4 MR. FLERLAGE: You're conducting a
5 discovery deposition, which I don't see how you're
6 going to use it, so I'm going to object any way I feel
7 necessary for trial purposes. Objection. Leading.
8 MR. SMITH: Q. We are back on page 1112.
9 Do you see in the last full paragraph the
10 article states, "The importance of compensatory
11 smoking should not be overemphasized"?
12 A. Yes.
13 Q. "Even if further reductions in tar yields
14 produce proportionately less benefit, any benefit
15 would be worthwhile"?
16 MR. FLERLAGE: Objection. Leading.
17 THE WITNESS: Do I see that? Yes.
18 MR. SMITH: Q. You agree that public
19 health authorities recognize that compensatory smoking
20 may reduce the health benefit to smokers of smoking
21 cigarettes with reduced tar?
22 A. Yes.
23 Q. You agree that many public health
24 authorities concluded that even though smokers
25 compensated, the policy of encouraging reductions in
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1 tar deliveries was still worth pursuing?
2 MR. FLERLAGE: Objection.
3 Compound and leading.
4 THE WITNESS: Yes.
5 MR. SMITH: Q. The article then goes on to
6 state, "Concerns that a lower-tar policy will
7 encourage smoking do not seem to be well grounded and
8 tar-reduction programs may actually help people to
9 give up smoking."
10 MR. FLERLAGE: Objection. Leading.
11 MR. SMITH: Q. You see that, right?
12 A. I do see that.
13 Q. Public health authorities concluded that
14 the lower-tar policy did not encourage people to
15 smoke, right?
16 MR. FLERLAGE: Objection. Leading.

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17 THE WITNESS: Yes.
18 MR. SMITH: Q. Public health authorities
19 concluded that tar reduction programs might actually
20 help people quit smoking?
21 MR. FLERLAGE: Objection. Leading.
22 THE WITNESS: Yes.
23 MR. SMITH: Q. The article then goes on to
24 state, "In both the US and the UK, which have active
25 tar-reduction programs, there have been notable
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1 reductions in general smoking rates and cigarette
2 consumption."
3 MR. FLERLAGE: Objection. Leading.
4 THE WITNESS: Yes, that's what it says.
5 MR. SMITH: Q. You agree that in the US
6 and United Kingdom, which followed a tar reduction
7 strategy, there were reductions in general smoking
8 rates and cigarette consumption?
9 MR. FLERLAGE: Objection. Leading.
10 THE WITNESS: Yes, although I don't think
11 they're connected, but they're both true.
12 MR. SMITH: Q. The article then goes on to
13 state, "In the American Cancer Society survey, people
14 who had switched to lower-tar cigarettes at the start
15 of the study were more likely to have become
16 ex-smokers by the end, irrespective of the number of
17 cigarettes originally smoked."
18 MR. FLERLAGE: Objection. Leading.
19 THE WITNESS: Yes.
20 MR. SMITH: Q. Do you agree that there
21 have been surveys by the American Cancer Society
22 indicating that people switching to lower tar
23 cigarettes were more likely to quit smoking?
24 MR. FLERLAGE: Objection. Leading.
25 THE WITNESS: Yes, but again, you have to
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1 go back and look at which cigarettes. The Cancer
2 Society studies were done -- I think the first one was
3 done in the '50s or '60s, and the switching was
4 different then, as relevant to modern cigarettes.
5 So you need to be careful -- again, I know
6 you said this was not responsive, but talking about
7 low-yield cigarettes is not just one thing. Low-yield
8 cigarettes can be a different species. You can go
9 from filter to nonfilter, you can go from very high
10 yields of 30 milligrams of tar to 15 milligrams of tar
11 to one milligram of tar, and so lumping the whole
12 thing into low yield is -- can be misleading.
13 MR. SMITH: Q. So you would agree there
14 are different categories of low-yield cigarettes?
15 A. Yes. And some of the statements that
16 you've read really are more relevant to some
17 categories of low-yield cigarettes than others.
18 Q. On page 1113 the article states in the
19 third full paragraph, in the first column, "Canadian
20 and British data and the results of unpublished
21 studies by the UK Government Chemist largely counter
22 the argument that the tar-tables mislead smokers."
23 MR. FLERLAGE: Objection. Leading.

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24 MR. SMITH: Q. Do you see that?
25 A. Yes, that's what it says.
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1 Q. You agree that public health authorities
2 looked at whether the tar and nicotine values reported
3 in the tar-tables misleads smokers?
4 MR. FLERLAGE: Objection. Leading.
5 THE WITNESS: Yes, although I have to say I
6 don't remember exactly which studies these were. I
7 have to go back and take a look at them. I know
8 Dr. Rickert, and I know his work, but I have to go
9 back and look at the basis for this statement.
10 MR. SMITH: Q. You agree that public
11 health authorities collected data indicating that
12 tar-tables did not mislead smokers?
13 MR. FLERLAGE: Objection. Leading.
14 THE WITNESS: Well, that's what it says,
15 but if I recall Rickert's work, he showed data similar
16 to what we showed; that if you look at markers of
17 intake, there was not a very good relationship between
18 actual human markers of intake within yields.
19 So I'm not sure what the basis of the
20 sentence was, although it says what you say it says,
21 but I don't know if I agree with that. I'd have to go
22 back and take a look at the basis for it.
23 MR. SMITH: Q. But just to get the record
24 straight, though, the studies cited in Exhibit 3 were
25 not conducted by Dr. Rickert, right?
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1 Those are separate studies.
2 MR. FLERLAGE: Objection. Leading.
3 THE WITNESS: The Canada study was
4 conducted by Dr. Rickert. It says -- the sentence
5 says "Canadian and British data."
6 The Canadian data was work by Dr. Rickert.
7 MR. SMITH: Q. But the British data, you
8 just don't know who did those studies?
9 A. Well, I don't recall the paper.
10 I have read that that was Rawbone, but I
11 don't recall the results.
12 Q. The article goes on to state, "Altering the
13 machine-smoking conditions does not materially affect
14 the ranking of different brands. As intended, the
15 figures are therefore fair indications of relative
16 yields, although they do not reflect the absolute
17 yields to the smoker."
18 Do you see that it states that?
19 A. It states that.
20 Q. And you agree -- do you agree that the
21 figures in the tar tables do not reflect absolute
22 yields to the smokers?
23 A. Yes.
24 MR. FLERLAGE: Objection.
25 MR. SMITH: Q. You agree that the studies
page 50
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1 have indicated that altering machine smoking
2 conditions does not affect the relative ranking of

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3 different brands of cigarettes in the tar tables?
4 A. Well, it doesn't affect the relative
5 ranking, I don't think, but it does affect the
6 proportions, for example, tar/nicotine ratios.
7 If you take a low-yield cigarette and you
8 smoke it more intensely like you're compensating, you
9 actually see a change in tar and nicotine ratio. That
10 ratio actually gets higher, so you get more tar if you
11 smoke a cigarette more intensely. So the rankings may
12 not change, but the tar/nicotine ratios, in a
13 quantitative sense, one to another, does change.
14 Q. And you're basing those conclusions on the
15 research you've done on compensation?
16 A. Well, both my work and also Dr. Rickert's
17 work.
18 Q. At any rate, the issues of whether
19 compensation changed absolute and relative yields,
20 that was something that was looked at by the public
21 health communities?
22 A. Yes.
23 Q. Would you agree that while the figures in
24 the tar tables -- strike that. I think I asked you
25 that question already, okay?
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page 52
1 Would you agree that the tar tables were
2 designed by the government health authorities to give
3 fair indications of relative yields of various
4 cigarette brands?
5 A. Yes.
6 Q. At the top of the second column the article
7 states, "However, the chances of showing that any
8 single component of tobacco smoke is responsible for a
9 particular disease is small, not because the component
10 is harmless, but because the studies required are
11 difficult, if not impossible, to carry out."
12 Do you see that?
13 MR. FLERLAGE: Objection.
14 Compound and leading.
15 THE WITNESS: Yes.
16 MR. SMITH: Q. Do you agree that the
17 chances of showing that any single component of
18 tobacco smoke is responsible for a particular disease
19 is small?
20 MR. FLERLAGE: Objection. Leading.
21 THE WITNESS: That's a tough question to
22 answer. There are some carcinogens that seem to be
23 changing quantitatively in different ways.
24 For example, polycyclic hydrocarbons are
25 one major carcinogen. The tobacco-specific
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1 nitrosamines are another one. The low-yield
2 cigarettes, when you reduce the tar, you lower the
3 polycyclic hydrocarbons, but you increase the
4 nitrosamines. And so it actually would be possible, I
5 think, epidemiologically to be able to begin to tease
6 out those two things.
7 The most recent American Cancer Society
8 study which suggested that switching to low-yield
9 cigarettes does not reduce lung cancer risks

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10 speculated that the reason why is that because even
11 though there's less polycyclic hydrocarbon exposure,
12 there's more nitrosamine exposure. So I'm not sure.
13 This was certainly what I believed when this article
14 was written, 1985, but it might be different now.
15 MR. SMITH: Q. Move to strike as
16 nonresponsive.
17 Do you agree that the chances of showing
18 that any -- strike that also.
19 Now I'm at the bottom of the second column
20 in Exhibit 3. The article states, "At the same time
21 as the lower yield approach is pursued, governments
22 should make smokers more aware of the reality and
23 potential risks of compensatory smoking."
24 Do you see that?
25 MR. FLERLAGE: Objection. Leading.
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1 THE WITNESS: Yes, I see that.
2 MR. SMITH: Q. Do you agree that the
3 public health authorities concluded that governments
4 should make smokers aware of the potential risks of
5 compensatory smoking?
6 MR. FLERLAGE: Objection. Leading.
7 THE WITNESS: That's what our -- that's
8 what the group decided, yes.
9 MR. STEIN: Why don't you wait.
10 (Phone interruption)
11 MR. SMITH: We might as well take a break.
12 (A recess was taken from 11:53 to 11:56 a.m.)
13 MR. SMITH: Q. Before the break we were
14 discussing Exhibit 3, and it's mentioning that public
15 health authorities were urging governments to make
16 efforts to make smokers aware about the potential
17 effects of compensatory smoking.
18 A. Yes.
19 MR. FLERLAGE: Objection. Leading.
20 MR. SMITH: Q. Well, do you agree that
21 public health authorities concluded that government
22 should make smokers aware about the potential risk of
23 compensatory smoking?
24 A. Well, this group concluded that.
25 Q. And that group was composed of a number of
page 54
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1 prominent scientists and researchers in the area of
2 smoker compensation?
3 A. Yes.
4 MR. FLERLAGE: Objection.
5 MR. McDONNELL: Was there an answer to that
6 question?
7 THE WITNESS: Yes.
8 MR. SMITH: Q. On page 1114 the article
9 states in the last sentence, "The lower-yield approach
10 is but one facet of a general strategy aimed at
11 reducing the extent of disease caused by smoking in
12 societies in which some people will continue to smoke
13 regardless of the adverse long-term consequences to
14 their health."
15 MR. FLERLAGE: Objection. Leading.
16 THE WITNESS: Yes, I see that.

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17 MR. SMITH: Q. Do you agree that public
18 health authorities viewed the low-tar policy as but
19 one component in a general strategy aimed at reducing
20 the effects of disease caused by smoking?
21 A. Yes.
22 Q. The public health community adopted other
23 policies besides encouraging reduction in the tar
24 level of cigarettes, in order to combat the effects of
25 disease caused by smoking?

1 A. Yes.
2 MR. FLERLAGE: Objection. Move to strike
3 all testimony on this document. Inadequate predicate.
4 (Defendants' Exhibit 4 was
5 marked for identification)
6 MR. SMITH: Q. I'm handing you a copy of
7 another article, which is actually the first chapter
8 in a book by Alexander Shmuk, S-H-M-U-K.
9 MR. FLERLAGE: This is four? Exhibit 4?
10 MR. SMITH: That's correct.
11 Q. The book is entitled The Chemistry and
12 Technology of Tobacco, and was published in 1953.
13 A. Yes.
14 Q. Have you seen any internal tobacco company
15 documents discussing Shmuk's work?
16 MR. FLERLAGE: I won't object to that one.
17 THE WITNESS: I don't recall specifically.
18 It's possible, but I don't remember it.
19 MR. SMITH: Q. You see that the first page
20 identifies the book as a collection of the works of
21 Alexander Shmuk, is that correct?
22 A. Yes.
23 Q. And do you see on the second title page
24 that the Shmuk book was published by the National
25 Science Foundation and the United States Department of

1 Agriculture?
2 A. Or published for them by the Israel Program
3 for Scientific Translations.
4 Q. The National Science Foundation is a US
5 government agency responsible for promoting science
6 and engineering, is that correct?
7 A. Yes.
8 Q. And the United States government... the
9 United States government funded or supported the
10 publication of the Shmuk book in 1953, is that right?
11 MR. FLERLAGE: Objection. If you know.
12 THE WITNESS: Well, I don't know anything
13 about the support. All I know is it says published
14 for NSF by the -- this Israel program.
15 MR. SMITH: Q. The Shmuk book was
16 published for the National Science Foundation back in
17 1953, right?
18 MR. FLERLAGE: That's what it says, right.
19 THE WITNESS: It was published in 1961, it
20 looks like. It was published in Moscow in 1953.
21 MR. SMITH: Q. And published for the
22 National Science Foundation and the Department of
23 Agriculture in 1961?

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24 A. Yes.
25 Q. If you look at the table of contents, do
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1 you see that the Shmuk book is a fairly comprehensive
2 resource on the chemistry and technology of tobacco
3 products?
4 MR. FLERLAGE: Objection.
5 MS. McDEVITT: Objection.
6 MR. FLERLAGE: Leading. If you know.
7 Have you ever seen this before?
8 THE WITNESS: No.
9 MR. FLERLAGE: Strike that. Never mind.
10 THE WITNESS: Well, without reading it, I
11 can't say how comprehensive it is, in terms of detail,
12 but certainly it talks about a lot of different topics
13 related to the... to tobacco chemistry.
14 MR. SMITH: Q. Do you think it's the type
15 of thing that you would like to review before you give
16 your testimony in any of these cases?
17 A. Well, I would like to read it.
18 I don't know if it's going to be relevant
19 or not, but I certainly look forward to reading it.
20 Q. Would you like me to give you a copy of the
21 book?
22 A. Sure.
23 Q. At the end of the deposition, then, I'll
24 give it to your lawyer and he can give it to you.
25 MR. FLERLAGE: Is that the Russian version
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1 or the English version?
2 MR. SMITH: No.
3 Q. It's all in English, isn't it,
4 Dr. Benowitz?
5 A. This part is in English.
6 Q. If you turn to page five, you see that the
7 first article in the Shmuk book is on the taste
8 quality and chemical composition of tobacco.
9 A. Yes.
10 Q. Do you see from the footnote that this
11 article was originally published in 1939?
12 A. Yes.
13 Q. On page ten you see that the third
14 paragraph of the Shmuk book states, "Although nicotine
15 does not produce special taste sensations, it does,
16 however, have a specific effect which is, in fact, the
17 reason why a person smokes." Do you see that?
18 MR. FLERLAGE: Objection. Leading.
19 THE WITNESS: Yes, I see that.
20 MR. SMITH: Q. The Shmuk book indicates
21 that people smoke for nicotine?
22 A. Yes.
23 MR. FLERLAGE: Objection. Leading.
24 MR. SMITH: Q. The Shmuk book states in
25 the fourth paragraph, "On the basis of numerous
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1 analyses it has been established that the optimum
2 level of nicotine content for the best grades is 1.2

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3 to 1.5 percent." Do you see that?
4 MR. FLERLAGE: Objection. Leading.
5 THE WITNESS: Yes, I see that.
6 MR. SMITH: Q. The Shmuk book discusses
7 optimum levels of nicotine in tobacco?
8 MR. FLERLAGE: Objection. Leading.
9 THE WITNESS: Yes, but I have to say it's
10 confusing to me. It says optimum level for the best
11 grade, versus optimum level for the medium grade,
12 versus optimum level for the inferior grade.
13 Optimum, to me, would be the best, and so
14 saying this is the best for the inferior grade is sort
15 of a strange way to say things.
16 MR. SMITH: Q. The Shmuk book discusses
17 the nicotine content of various types of tobacco,
18 right?
19 A. Yes.
20 Q. The Shmuk book then goes on to state, "A
21 high nicotine content in tobaccos is indicated not
22 only by increased physiological strength (i.e., by the
23 specific narcotic action of the nicotine on the
24 organism) but also by the strong change in the
25 alkalinity of the smoke, which produces poor taste
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1 sensations and a high taste strength."
2 Do you see that?
3 MR. FLERLAGE: Objection.
4 Compound and leading.
5 THE WITNESS: Yes.
6 MR. SMITH: Q. The Shmuk book contains
7 research indicating that high content in nicotine and
8 tobacco increases its strength?
9 MR. FLERLAGE: Objection.
10 Compound and leading.
11 THE WITNESS: Well, I haven't seen the
12 material that supports that, but that's what this
13 sentence says.
14 MR. SMITH: Q. The Shmuk book indicates
15 that high nicotine content in tobacco increases the
16 physiological strength of the tobacco, right?
17 MR. FLERLAGE: Objection. Leading.
18 THE WITNESS: Well, it implies that by this
19 sentence.
20 MR. SMITH: Q. The Shmuk book also
21 indicates that nicotine has a narcotic action on
22 smokers?
23 A. Yes.
24 Q. On page ten, in the sixth paragraph, the
25 Shmuk book states, "The poorer the taste quality of
page 61
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1 the tobacco the greater its content of free nicotine.
2 Consequently, this form of nicotine corresponds to the
3 taste strength of the tobacco." Do you see that?
4 MR. FLERLAGE: Objection.
5 Compound, leading.
6 THE WITNESS: Yes, I see that.
7 MR. SMITH: Q. The Shmuk book contains
8 research on free nicotine and cigarette smoke and its
9 relation to the strength of the tobacco?

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10 MR. FLERLAGE: Objection. Leading.
11 THE WITNESS: Yes.
12 MR. SMITH: Q. The Shmuk book contains
13 information indicating that the free nicotine and
14 cigarette smoke corresponds to the taste strength of
15 tobacco?
16 MR. FLERLAGE: Objection. Leading.
17 THE WITNESS: Yes.
18 MR. SMITH: Q. On page 12, in the first
19 sentence, the Shmuk book states, "A greater quantity
20 of ammonia strongly influences the taste quality of
21 tobacco."
22 MR. FLERLAGE: Objection. Leading.
23 THE WITNESS: Yes.
24 MR. SMITH: Q. The Shmuk book contains
25 research indicating that the amount of ammonia in
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1 tobacco influences the taste quality of cigarettes and
2 cigarette smoke?
3 MR. FLERLAGE: Objection. Leading.
4 THE WITNESS: Yes.
5 MR. SMITH: Q. Page 12, in the third
6 paragraph, the Shmuk book states that, "Almost 70 to
7 80 percent of the alkalinity of the smoke -- one of
8 the most important factors in determining the quality
9 of the tobacco -- is attributable to the content of
10 ammonia in the smoke." Do you see that?
11 MR. FLERLAGE: Objection. Leading.
12 THE WITNESS: Yes.
13 MR. SMITH: Q. The Shmuk book contains
14 research indicating that 80 percent of the alkalinity
15 of the cigarette smoke is attributable to the content
16 of ammonia in the smoke?
17 MR. FLERLAGE: Objection. Leading.
18 THE WITNESS: That's what it states.
19 MR. McDONNELL: I'm sorry, was this a 1939
20 publication?
21 MR. SMITH: The article was originally
22 published in 1939, which is indicated by the first
23 footnote.
24 Q. Do you see that?
25 MR. McDONNELL: I'm sorry, I don't have a
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1 copy of it. That's why I'm asking the question.
2 MR. FLERLAGE: Maybe we can make one for
3 you too.
4 THE WITNESS: Actually, it's hard to tell
5 exactly, because there are different dates for each of
6 the articles.
7 MR. SMITH: Q. Well, you remember that the
8 Shmuk book is a collection of the published research
9 of Alexander Shmuk?
10 MR. FLERLAGE: Objection.
11 Remember from what?
12 MR. SMITH: From the title page.
13 MS. McDEVITT: Of the article he's never
14 seen before?
15 THE WITNESS: It's not important, but it
16 looks like this particular article was published in

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17 1928.
18 MR. McDONNELL: What's... I found '39.
19 What's the indication that it was published in '28?
20 THE WITNESS: If you look at the table of
21 contents, each of the articles has a different date on
22 it, and the first chapter says 1928.
23 MR. SMITH: Well, at any rate, let's move
24 on to the next one.
25 (Defendants' Exhibit 5 was
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1 marked for identification)
2 MR. SMITH: I'm going to mark another
3 article from the Shmuk book as Exhibit 5.
4 MR. FLERLAGE: For the record, I'll move to
5 strike. Inadequate predicate.
6 MR. SMITH: Q. Exhibit 5 is another
7 article from the Shmuk book, and if you look at the
8 top of page 462, the Shmuk book states, "The
9 artificial introduction of various nitrogenous
10 substances into tobacco sharply reflects on the
11 reaction of the smoke and at the same time causes a
12 considerable increase in the total alkalinity of the
13 smoke."
14 MR. FLERLAGE: Objection.
15 Compound and leading.
16 MR. SMITH: Q. The article goes on to
17 state that, "The artificial increase in the content of
18 ammonia has the sharpest effect in the above-described
19 sense, manifesting itself very strongly in raising the
20 sharpness of the taste sensations." Do you see that?
21 A. Yes.
22 MR. FLERLAGE: Objection.
23 Compound and leading.
24 MR. McDONNELL: I'm sorry, but Dr. Benowitz
25 is nodding.
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1 MR. SMITH: Q. The Shmuk book contains
2 research on artificially increasing the content of
3 ammonia in tobacco in order to change the taste
4 quality of tobacco smoke?
5 MR. FLERLAGE: Objection.
6 MS. McDEVITT: Objection.
7 THE WITNESS: It might.
8 I haven't seen that, but they certainly
9 make that statement, that that's the case.
10 (Defendants' Exhibit 6 was
11 marked for identification)
12 MR. SMITH: Q. I'm going to hand you a
13 copy of another article from the Shmuk book --
14 MR. FLERLAGE: Move to strike.
15 Inadequate predicate --
16 MR. SMITH: Q. -- which is --
17 MR. FLERLAGE: -- on the last article and
18 exhibit.
19 MR. SMITH: Q. -- which is marked
20 Exhibit 6. On page 587, in the first sentence, the
21 Shmuk book states that, "Furthermore, the
22 physiological effect of nicotine on the human organism
23 is such as to induce the addiction to smoking and

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24 bring about general consumption of tobacco."
25 Do you...
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1 MR. FLERLAGE: I'm sorry.
2 MR. SMITH: Q. Do you see that?
3 MR. FLERLAGE: Objection.
4 Compound, leading.
5 THE WITNESS: Yes, I do see it.
6 MR. SMITH: Q. The Shmuk book contains
7 research stating that nicotine in cigarettes induces
8 addiction to smoking?
9 MR. FLERLAGE: Objection. Leading.
10 MS. McDEVITT: Objection.
11 THE WITNESS: Well, again, all I can
12 confirm is what it says here, since I haven't read the
13 document, so I can't say what supports it, but the
14 question is there.
15 MR. SMITH: Q. So the Shmuk book at least
16 states that nicotine in tobacco induces addiction to
17 smoking?
18 A. Yes.
19 MR. FLERLAGE: Objection.
20 MR. SMITH: Q. And also the Shmuk book
21 indicates that the nicotine in cigarettes is
22 responsible for the consumption of tobacco products?
23 MR. FLERLAGE: Objection. Leading.
24 THE WITNESS: Yes.
25 MR. SMITH: Q. You're familiar with the
page 67
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1 Larson and Silvette, S-I-L-V-E-T-T-E, treatise on
2 tobacco published in 1961, right?
3 A. I am.
4 Q. And the Larson and Silvette treatise is a
5 very comprehensive reference source for information on
6 tobacco and its effects on human beings, right?
7 MR. FLERLAGE: Objection. Leading.
8 MS. McDEVITT: Objection.
9 THE WITNESS: Up until that date, yes.
10 MR. SMITH: Q. You know that the Larson
11 and Silvette treatise was funded by the tobacco
12 industry?
13 THE WITNESS: That's my understanding.
14 (Defendants' Exhibit 7 was
15 marked for identification)
16 MR. SMITH: Q. I'm going to hand you a
17 copy of the table of contents of the Larson and
18 Silvette book, which has been marked Exhibit 7, and I
19 believe that you've had an opportunity to look at the
20 Larson book in prior cases in which you've testified,
21 is that correct?
22 A. Yes. I have a copy on my shelf as well.
23 MR. FLERLAGE: I would just caution you, if
24 you do need to look at it or see anything else other
25 than what's been shown to you, based on questioning,
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1 ask for it, okay?
2 THE WITNESS: Yes.

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3 MR. SMITH: Q. You see on page Roman
4 Numeral VIII that the Larson book contains information
5 on the absorption and fate of nicotine in the body?
6 A. Yes.
7 Q. The Larson book contains information on the
8 metabolism in the body from cigarette smoke?
9 A. Yes.
10 Q. The Larson book contains information on the
11 effects of nicotine on the nervous system?
12 A. Yes.
13 Q. The Larson book contains information on the
14 effects of nicotine on the cerebral cortex?
15 A. Yes.
16 Q. The Larson book contains information on the
17 effects of nicotine on the brain?
18 A. Yes.
19 Q. On page Roman Numeral IX do you see that
20 the Larson book contains information on the effects of
21 tobacco on the respiratory system?
22 A. Yes.
23 Q. The Larson book contains information about
24 the effects of tobacco on the gastrointestinal tract?
25 A. Yes.
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1 Q. The Larson book contains information about
2 the effects of nicotine on appetite?
3 A. Yes.
4 Q. On page Roman Numeral X you see the -- in
5 Chapter 11, the Larson book has information about the
6 effects of nicotine on the endocrine glands?
7 A. Yes.
8 Q. The Larson book contains information about
9 the effects of nicotine on the adrenal cortex?
10 A. Yes.
11 Q. The Larson -- in chapter 14 of the Larson
12 book it contains information on the toxicology of
13 tobacco?
14 A. Yes.
15 Q. On page Roman Numeral XI you see that
16 several chapters of the Larson book contain
17 information on diseases caused by tobacco?
18 A. Yes.
19 (Defendants' Exhibit 8 was
20 marked for identification)
21 MR. SMITH: Q. I'm going to hand you a
22 copy of chapter 15 of the Larson book, which I've
23 marked as Exhibit 8. On page 520 you see that the
24 Larson book has a section on the development of
25 tolerance to smoking?
page 70
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1 A. Yes.
2 Q. The Larson book discusses the fact that
3 smokers develop tolerance to the effects of nicotine?
4 MR. FLERLAGE: Objection. Leading.
5 THE WITNESS: Well, I haven't read the
6 whole thing, but I assume -- and I don't recall from
7 when I read it several years ago, but I assume that's
8 what it talks about.
9 MR. SMITH: Q. I'll have you turn to page

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10 526. In the first full paragraph, in the second
11 column, it states that, "Most of the writers on the
12 subject have apparently viewed tobacco-smoking as both
13 a habit and an addiction, depending upon the
14 individual and upon character of the abstinence
15 symptoms; some have considered it purely a habit;
16 some, a pure drug addiction; while still others have
17 preferred to go beyond the conventional definitions of
18 habituation or addiction, and to regard
19 tobacco-smoking from other points of view."
20 MR. FLERLAGE: Objection.
21 Compound and leading.
22 THE WITNESS: Where are you reading?
23 MR. SMITH: Q. It's on page 526, in the
24 first full paragraph in the second column.
25 A. Oh, I see.
page 71
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page 72
1 Q. And the sentence starting, "Most of the
2 writers."
3 A. Right.
4 Q. You see where that is?
5 A. Yes.
6 MR. FLERLAGE: I'm going to renew the
7 objection to that question. Leading and compound.
8 MR. SMITH: Q. The 1961 Larson book
9 describes 1961 publications that describes tobacco
10 smoking as a pure addiction?
11 MR. FLERLAGE: Objection. Leading.
12 MR. SMITH: Q. The Larson and Silvette
13 treatise on tobacco discusses a number of studies from
14 the 1930s through the 1960s in which researchers
15 labeled smoking an addiction?
16 MR. FLERLAGE: Objection. Leading.
17 THE WITNESS: I don't know if through the
18 '60s. Through the '50s. But yes.
19 MR. SMITH: Q. The Larson book states that
20 smoking is both a habit and an addiction?
21 MR. FLERLAGE: Objection. Leading.
22 THE WITNESS: Well, it says that it's been
23 defined by different people as a habit or an
24 addiction.
25 MR. SMITH: Q. I think that first sentence
page 72
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page 73
1 states, "Most of the writers on the subject have
2 apparently viewed tobacco-smoking as both a habit and
3 an addiction." Do you see that?
4 MR. FLERLAGE: Objection.
5 Leading, argumentative.
6 THE WITNESS: Yes.
7 MR. SMITH: Q. Would you agree that the
8 Larson book states that most of the scientists that
9 had written at that time viewed tobacco smoking as
10 both a habit and an addiction?
11 MR. FLERLAGE: Objection.
12 MS. McDEVITT: Objection.
13 MR. FLERLAGE: Leading.
14 THE WITNESS: It's a funny sentence. It
15 says, "Most of the writers... apparently viewed."
16 That's what it says.

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17 "Most of the writers... apparently viewed
18 tobacco-smoking as both a habit and an addiction."
19 I'm not sure what that means by "apparently viewed."
20 I can just say what it's -- I can just
21 confirm what it says.
22 MR. SMITH: Q. Fair enough.
23 If you turn to page 532, in the second
24 first full paragraph in the second column, the book --
25 the Larson book -- states, "The fact -- a matter of
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page 74
1 almost universal knowledge and experience -- that
2 smokers will not, except under duress, accept
3 completely 'denicotinized' cigarettes or cigars, or
4 tobacco substitutes, is, perhaps, the best answer to
5 the role of nicotine in tobacco-smoking."
6 MR. FLERLAGE: Objection. Leading.
7 MR. SMITH: Q. Do you see that?
8 A. Yes.
9 Q. The Larson book discusses the fact that
10 smokers will not accept cigarettes where the nicotine
11 has been removed?
12 MR. FLERLAGE: Objection. Leading.
13 THE WITNESS: Yes.
14 MR. SMITH: Q. The Larson book indicates
15 that it is universally known that smokers will not
16 accept cigarettes with the nicotine removed?
17 MR. FLERLAGE: Objection. Leading.
18 MS. McDEVITT: Objection.
19 THE WITNESS: That's what it states.
20 MR. SMITH: Q. Have you done any research,
21 prior to 1961, on what was being published about
22 tobacco substitutes up until that time?
23 MR. FLERLAGE: You mean has he done a
24 literature search or has he done actual research?
25 Objection. Form.
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1 THE WITNESS: I don't recall if I have seen
2 papers prior to 1961 on this question or not.
3 I have not specifically searched prior to
4 '61. Most of the work I've seen, I think is after
5 that, but I can't say for sure if I have or have not
6 seen something before '61.
7 MR. SMITH: Q. The Larson book goes on to
8 state, "Man smokes, not in spite of, but because of
9 nicotine."
10 MR. FLERLAGE: Objection. Leading.
11 THE WITNESS: Yes, yes.
12 MR. SMITH: Q. The authors of the Larson
13 book express the view that smokers smoke for nicotine?
14 MR. FLERLAGE: Objection. Leading.
15 THE WITNESS: Yes.
16 MR. SMITH: Q. You see under the heading
17 Reasons for Smoking, the Larson book has a section on
18 the pharmacological effects of nicotine?
19 MR. FLERLAGE: Objection. Leading.
20 THE WITNESS: Yes.
21 MR. SMITH: Q. The Larson book identified
22 the pharmacological effects of nicotine as the reason
23 people smoke?

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24 MR. FLERLAGE: Objection. Leading.
25 THE WITNESS: Yes.
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1 MR. SMITH: Q. On page 538 you see that
2 the Larson book contains information -- strike that.
3 (Defendants' Exhibit 9 was
4 marked for identification)
5 MR. SMITH: Q. I'm going to hand you a
6 copy of the next exhibit.
7 MR. FLERLAGE: Objection. Inadequate
8 predicate. Move to strike about Larson.
9 MR. SMITH: Q. I'm marking as Exhibit 9
10 another chapter, chapter one of the Larson treatise,
11 which I've handed to you. Do you have that? Is that
12 what's in front of you, chapter one?
13 A. Yes.
14 Q. Do you see in the first sentence on page
15 one that the Larson book discusses the absorption by
16 smokers of nicotine and other products of tobacco?
17 MR. FLERLAGE: Objection. Leading.
18 THE WITNESS: Yes.
19 MR. SMITH: Q. On page seven, at the top
20 of the second full paragraph in the second column, the
21 Larson book states, "The more alkaline mainstream
22 smoke of cigars contains part of the nicotine in free
23 form, in contrast to the more acid mainstream smoke of
24 cigarettes, and this free nicotine condensing with the
25 water vapor was said to be absorbed almost
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1 quantitatively by the body of the smoker."
2 MR. FLERLAGE: Objection.
3 Leading and compound.
4 THE WITNESS: Yes, I see that.
5 MR. SMITH: Q. The Larson book discussed
6 the subject of free nicotine in cigarette smoke?
7 MR. FLERLAGE: Objection. Leading.
8 THE WITNESS: Yes.
9 MR. SMITH: Q. The Larson book on tobacco
10 discussed the theory that nicotine uptake depends on
11 the pH of tobacco smoke?
12 MR. FLERLAGE: Objection. Leading.
13 THE WITNESS: Yes.
14 MR. SMITH: Q. The Larson book goes on to
15 state, "By the nicotine 'shift' (proportion of
16 nicotine in the free form), enough nicotine is
17 absorbed, just by mouth smoking and without inhaling,
18 to give the desired physiological effects;
19 cigar-smoke, consequently, does not need to be drawn
20 into the lungs, which would be unpleasant because of
21 its alkaline reaction."
22 MR. FLERLAGE: Objection.
23 Compound and leading.
24 THE WITNESS: Yes, I see that.
25 MR. SMITH: Q. The 1961 Larson book
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1 discusses the fact that nicotine in cigarette smoke
2 has physiological effects that smokers desire?

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3 MR. FLERLAGE: Objection. Leading.
4 THE WITNESS: Yes.
5 MR. FLERLAGE: Objection. Move to strike.
6 Inadequate predicate established.
7 (Defendants' Exhibit 10 was
8 marked for identification)
9 MR. SMITH: Q. I'm handing you a copy
10 which has been marked Exhibit 10 of an article
11 entitled Metabolism of Nicotine and Nature of Tobacco
12 Smoke Irritants by Professor Larson, published in
13 1952. That's what's in front of you.
14 A. Yes.
15 Q. The metabolism of nicotine is one area of
16 nicotine pharmacology?
17 A. Yes.
18 Q. You see that Larson worked for the American
19 Tobacco Company back in the 1950s?
20 A. I don't know if he worked for them. He has
21 an affiliation with the Medical College of Virginia
22 and the American Tobacco Company.
23 I'm not sure if that means -- he was
24 associated at some level with them.
25 Q. The Larson article in front of you

1 identifies both the Medical College of Virginia and
2 the American Tobacco Company as institutions with
3 which Dr. Larson was affiliated?
4 A. Yes.
5 Q. Scientists who worked with tobacco
6 companies, such as Dr. Larson, published research on
7 nicotine pharmacology back in the 1950s, is that
8 accurate?
9 MR. FLERLAGE: Objection. If you know.
10 Leading.
11 THE WITNESS: Yes.
12 MR. SMITH: Q. Have you conducted any
13 search of the published literature for articles on
14 nicotine by tobacco scientists published before 1964?
15 A. No, not by those parameters.
16 (Defendants' Exhibit 11 was
17 marked for identification)
18 MR. SMITH: Q. I'm going to hand you a
19 copy of another exhibit which is marked Exhibit 11,
20 which is a 1988 document by David Creighton,
21 C-R-E-I-G-H-T-O-N, entitled The Significance of pH in
22 Tobacco and Tobacco Smoke.
23 That's what's in front of you.
24 A. Yes.
25 Q. The Creighton document is one of the

1 documents you're relying on for your testimony, is
2 that right?
3 A. Yes, I have reviewed this before.
4 Q. If you turn to page four you see that the
5 document indicates that for cigar smoke the percent of
6 nicotine that is in the free base form is between 58
7 percent and 82 percent?
8 A. Yes.
9 MR. FLERLAGE: Objection. Leading.

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10 MR. SMITH: Q. Internal tobacco company
11 documents, such as the Creighton document, indicate
12 that the percent of free -- of nicotine in the free
13 base form in cigar smoke is between 58 percent and 82
14 percent?
15 A. Yes.
16 MR. FLERLAGE: Objection. Leading.
17 THE WITNESS: Yes.
18 MR. SMITH: Q. The Creighton document
19 indicates that between .22 and 2.2 percent of the
20 nicotine in the smoke of cigarettes sold in the United
21 States is in the free base form?
22 MR. FLERLAGE: Objection. Leading.
23 THE WITNESS: Yes.
24 MR. SMITH: Q. Internal tobacco company
25 documents indicate that the percent of nicotine in the
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1 free base form in cigarette smoke is, at most, 2.2
2 percent?
3 MR. FLERLAGE: Objection. Leading.
4 THE WITNESS: Yes.
5 MR. SMITH: Q. Internal tobacco company
6 documents indicate that in US cigarettes, at least 98
7 percent of the nicotine in the smoke is in the bound
8 form?
9 MR. FLERLAGE: Objection. Leading.
10 THE WITNESS: For which cigarettes, again?
11 MR. SMITH: Q. US cigarettes.
12 Strike it. It's a bad question.
13 At the bottom of the page, the Creighton
14 document states, "The inhaled smoke contacts and
15 partially dissolves in the mucous linings of the upper
16 airways which have a pH above seven."
17 Do you see that?
18 MR. FLERLAGE: Objection. Leading.
19 THE WITNESS: Yes.
20 MR. SMITH: Q. Do you agree that the
21 mucous linings of the upper airways have a pH above
22 seven?
23 A. Yes.
24 Q. Mucous linings of the airways have a pH
25 that is greater than the pH of cigarette smoke?
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1 MR. FLERLAGE: Objection. Leading.
2 THE WITNESS: For the US cigarettes, yes.
3 MR. SMITH: Q. If you turn to page five,
4 under the heading Impact, the document states that,
5 "The sensory attribute most associated with nicotine
6 is described within the company as 'impact.'"
7 MR. FLERLAGE: Objection. Leading.
8 THE WITNESS: Yes.
9 MR. SMITH: Q. Internal tobacco company
10 documents define "impact" as the sensory attribute
11 associated with nicotine?
12 MR. FLERLAGE: Objection.
13 THE WITNESS: Yes.
14 MR. SMITH: Q. At the bottom of the page
15 you see that the document states, "A physiological
16 explanation of the impact sensation is that nicotine

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17 causes smooth muscle to contract."
18 MR. FLERLAGE: Objection. Leading.
19 THE WITNESS: Yes.
20 MR. SMITH: Q. Internal tobacco company
21 documents, such as the Creighton document, indicate
22 that the impact sensation is due to nicotine causing
23 the smooth muscle lining of the airways to contract?
24 MR. FLERLAGE: Objection. Leading.
25 THE WITNESS: Yes.
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1 MR. SMITH: Q. If you turn to page nine,
2 you see that the document states in the first sentence
3 of the last paragraph, "On combustion, when the
4 cigarette is smoked, the sugars form acids."
5 MR. FLERLAGE: Objection. Leading.
6 THE WITNESS: Yes, yes.
7 MR. SMITH: Q. You agree that internal
8 tobacco company documents indicate that when a
9 cigarette is smoked, the sugars in the cigarette form
10 acids in the smoke?
11 MR. FLERLAGE: Objection. Leading.
12 THE WITNESS: Yes.
13 MR. SMITH: Q. The document then states,
14 "These acids reduce the pH of the smoke so that the
15 nicotine is held or moves into the bound form."
16 MR. FLERLAGE: Objection. Leading.
17 THE WITNESS: Yes.
18 MR. SMITH: Q. You agree that internal
19 tobacco company documents state that acids in
20 cigarette smoke reduce the pH of the smoke so that the
21 nicotine moves into the bound form?
22 MR. FLERLAGE: Objection. Leading.
23 THE WITNESS: Did you say do these
24 documents say that, or do I agree with that?
25 What was the question?
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1 MR. SMITH: Q. Do the documents say that?
2 A. Yes.
3 Q. So just to make the record clear, you agree
4 that internal tobacco company documents, such as the
5 Creighton document, state that acids in cigarette
6 smoke reduce the pH of the smoke so that the nicotine
7 moves into the bound form?
8 MR. FLERLAGE: Objection. Leading.
9 THE WITNESS: Yes.
10 (Defendants' Exhibit 12 was
11 marked for identification)
12 MR. SMITH: Q. I'm handing you a copy of
13 another article which is marked Exhibit 12, and it's
14 an article entitled Gender Differences in the
15 Pharmacology of Nicotine Addiction, which you
16 published in Addiction Biology in 1998.
17 A. Yes.
18 Q. You see on page 384, in the last paragraph
19 in the second column of your Addiction Biology
20 article?
21 A. Yes.
22 Q. You see that your article states, "Peak
23 levels of nicotine in the blood reflect several

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24 factors including the amount of smoke inhaled from the
25 cigarette (which to a considerable extent is under the
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1 control of the smoker), the extent of absorption, the
2 rate of absorption of nicotine from the smoke and the
3 rate and extent of distribution to highly perfused
4 body tissues."
5 A. Yes.
6 Q. You agree that peak levels of nicotine in
7 the blood are determined by several factors?
8 A. Yes.
9 Q. Do you agree that one factor that
10 determines peak levels of nicotine in a smoker's blood
11 is the amount of smoke inhaled from the cigarette?
12 A. Yes.
13 Q. Do you agree that one factor that
14 determines peak levels of nicotine in a smoker's blood
15 is the extent of nicotine absorption?
16 A. Yes.
17 Q. Do you agree that one factor that
18 determines peak levels of nicotine in the smoker's
19 blood is the rate of nicotine absorption from the
20 smoke?
21 A. Yes.
22 Q. Do you agree that one factor that
23 determines peak levels of nicotine in the smoker's
24 blood is the rate and extent of distribution to highly
25 perfused body tissues?
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1 A. Yes.
2 Q. You see on page 386, at the bottom of the
3 first column, the article states, "As discussed later,
4 afferent nerve-mediated actions probably contribute to
5 the sensory response and, to some extent, conditioned
6 responses to smoking, but are unlikely to maintain
7 nicotine addiction and cannot explain the tendency of
8 smokers to maintain particular levels of nicotine in
9 the body over time."
10 A. Yes.
11 Q. Do you agree that the effects of nicotine
12 on afferent nerves contribute to the sensory response
13 smokers get from cigarettes?
14 A. Yes.
15 Q. Do you agree that the effect of nicotine on
16 afferent nerves is unlikely to maintain nicotine
17 addiction?
18 A. By itself it is unlikely to do so, yes. It
19 can be a factor, in terms of the reinforcing effect of
20 a cigarette, but certainly this action in itself is
21 not likely to maintain nicotine addiction.
22 Q. So you agree that the effect of nicotine on
23 afferent nerves by itself is unlikely to maintain
24 nicotine addiction?
25 A. Yes.
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1 Q. You agree that the effect of nicotine on
2 afferent nerves cannot explain the tendency of smokers

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3 to maintain particular levels of nicotine in the body
4 over time?
5 A. Yes.
6 Q. You agree that today there are more former
7 smokers than current smokers?
8 A. Yes.
9 Q. Would you agree that since the 1960s the
10 percent of the population that smokes has declined by
11 about 40 percent?
12 A. Well, I don't recall the numbers, but
13 approximately something like that.
14 MR. SMITH: Are you ready for another break
15 or not?
16 THE WITNESS: Sure.
17 MR. SMITH: Okay.
18 (A recess was taken from 12:29 to 12:43 p.m.)
19 MR. SMITH: Before we start, I'd like to
20 just put on the record that we've agreed to
21 cross-notice this deposition in the Falise case.
22 The plaintiffs from Falise have agreed to
23 provide us the transcripts we requested of
24 Dr. Benowitz' testimony in prior asbestos cases, and
25 we will review those transcripts and then if we
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1 decide, we will request three additional hours of
2 deposition time, and the plaintiffs in Falise reserve
3 the right to object to that.
4 MR. STOLPER: Just a minor clarification.
5 We agreed to jointly try to get ahold of
6 those transcripts, and if either one of us gets ahold
7 of those transcripts, we'd share them with the other
8 parties.
9 (Defendants' Exhibit 13 was
10 marked for identification)
11 MR. SMITH: Q. Dr. Benowitz, before the
12 break we were talking about the prevalence of smoking.
13 Do you recall that?
14 A. Yes.
15 Q. I just wanted to give you what's been
16 marked as Exhibit 13, which is an article entitled
17 Cigarette Smoking Among Adults. It's from the CDC.
18 And just if you look at the first sentence,
19 you see that it states that, "The annual prevalence of
20 cigarette smoking among adults in the United States
21 declined 40 percent during 1965 to 1990."
22 MR. FLERLAGE: Objection.
23 MR. SMITH: Q. Do you see that?
24 A. Yes, I see that.
25 Q. Would you dispute those figures?
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1 A. No.
2 (Defendants' Exhibit 14 was
3 marked for identification)
4 MR. SMITH: Q. I'm going to hand you a
5 copy of another exhibit which has been marked as
6 Exhibit 14, and before I ask you questions about that
7 exhibit, I'd just like to ask you a few preliminary
8 questions, okay?
9 A. Yes.

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10 Q. You agree that today there are independent
11 scientists who criticize the use of the term
12 "addiction" because that term has been defined in many
13 different ways?
14 MR. FLERLAGE: Objection. Leading.
15 If you know.
16 THE WITNESS: I know scientists that don't
17 like the term.
18 MR. SMITH: Q. And that includes
19 scientists who do not work for tobacco companies?
20 MR. FLERLAGE: Objection. Leading.
21 THE WITNESS: Yes.
22 MR. SMITH: Q. There are independent
23 scientists who have observed that there is no
24 generally accepted definition of addiction?
25 MR. FLERLAGE: Objection. Leading.
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1 THE WITNESS: I'm sure there are.
2 MR. SMITH: Q. There are independent
3 scientists who have expressed the view that whether
4 smoking should be considered an addiction or a habit
5 is a controversial issue?
6 MR. FLERLAGE: Objection. Leading.
7 THE WITNESS: Well, I don't know that
8 currently there are many scientists who would call it
9 a habit. I think most scientists, if they don't like
10 the term "addiction," would prefer the term
11 "dependence."
12 MR. SMITH: Q. Would you agree that it's a
13 controversial issue of whether smoking should be
14 considered a habit, an addiction, or a dependence?
15 MR. STOLPER: Objection.
16 THE WITNESS: I don't think it's
17 controversial about whether it should be called a
18 habit. I think it's -- some people prefer the term
19 "dependence" over "addiction," however.
20 MR. SMITH: Q. If you turn to Exhibit 14,
21 which is chapter three of a book entitled Nicotine,
22 Caffeine and Social Drinking, written by Karl Battig,
23 and published in 1998.
24 If you look at page 110, in the bottom
25 paragraph, do you see that Dr. Battig states
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1 "Nevertheless, it is still a controversial issue as to
2 whether smoking should be considered as an addiction
3 rather than as a (perhaps strong) habit"?
4 MR. FLERLAGE: Objection.
5 THE WITNESS: He says that.
6 I don't agree with him.
7 MR. SMITH: Q. But you acknowledge that
8 there are independent scientists that think it's a
9 controversial issue whether smoking should be called a
10 habit or an addiction?
11 MR. FLERLAGE: Objection.
12 Asked and answered.
13 THE WITNESS: Karl Battig was independent,
14 but a lot of his research was ordered by the tobacco
15 industry.
16 MR. SMITH: Q. Does that make you call

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17 into question any of his research, or not?
18 A. No, but I just -- I'm not sure what you
19 mean by the term "independent." No, I think he did
20 some very interesting research.
21 Q. There are scientists within the general
22 scientific community, who don't work for tobacco
23 companies, that think it's controversial whether
24 smoking should be labeled a habit or an addiction?
25 MR. FLERLAGE: Objection.
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1 MS. McDEVITT: Objection.
2 MR. FLERLAGE: Asked and answered.
3 THE WITNESS: Dr. Battig did say this.
4 I don't agree with that. I think there are
5 relatively few scientists -- I don't know many
6 scientists who would still buy into the habit concept.
7 Most people, if they don't like "addiction" don't like
8 it because they think "dependence" is a better term.
9 I'm sure there are some scientists like
10 Dr. Battig who would call it a habit, but most do not.
11 MR. SMITH: Q. You would agree, though,
12 that there are independent scientists who prefer not
13 to use the term "addiction" when describing smoking?
14 MR. FLERLAGE: Objection. You can answer.
15 THE WITNESS: Well, it looks like there's
16 at least one.
17 MR. SMITH: Q. Have you done any research
18 to determine whether there are other scientists who
19 have published articles indicating that they would
20 rather not use the term "addiction" to describe
21 smoking?
22 MR. FLERLAGE: Objection.
23 THE WITNESS: No, I think there is a... a
24 defense expert who stated it's a habit as well, but
25 that... I'm not aware of other people that I've seen
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1 recently who have written about tobacco smoking as a
2 habit, who are known scientists in the field.
3 MR. SMITH: Q. And you haven't done a
4 literature search to find articles indicating that
5 addiction is an inappropriate term to use in the
6 context of smoking?
7 A. I have not done --
8 MR. FLERLAGE: Objection.
9 THE WITNESS: -- any.
10 It would be hard to search for that
11 question, but no, I have not tried to search for that.
12 MR. SMITH: Q. Would you agree that there
13 are some scientists within the general scientific
14 community who have expressed the view that the surgeon
15 general's decision to label smoking an addiction in
16 the 1988 report was based on a policy decision to
17 discourage smoking, rather than the result of medical
18 or scientific evidence?
19 MR. FLERLAGE: Objection.
20 MS. McDEVITT: Objection.
21 THE WITNESS: Are you asking if there are
22 some scientists who said that?
23 MR. SMITH: Q. Yes.

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24 A. I don't know.
25 Q. Would you agree that some scientists have
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1 pointed out that the term "addiction" is associated
2 with stigma associated with drug users?
3 MR. FLERLAGE: Objection.
4 MR. STOLPER: Objection.
5 THE WITNESS: Well, again, the only
6 scientists I know who have made statements like that
7 just prefer the term "dependence" because... because
8 of some of the factors you've named.
9 MR. SMITH: Q. Move to strike as
10 nonresponsive. Would you agree that there have been
11 studies by independent scientists who have reported
12 evidence that smokers are not dependent on nicotine?
13 MR. FLERLAGE: Objection.
14 THE WITNESS: Do I think that there are
15 scientists who would say that smokers are not
16 dependent on nicotine?
17 MR. FLERLAGE: He said "independent" in the
18 question.
19 THE WITNESS: I guess it's possible.
20 I don't know those scientists.
21 MR. SMITH: Q. Are you familiar with
22 Dr. Kumar's work, K-U-M-A-R?
23 A. Yes.
24 Q. And that's something that you've reviewed?
25 A. Yes. I assume you're talking about
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1 currently, because Dr. Kumar published work back in
2 the late '60s or early '70s or something. I forget
3 the date. And one of his studies made in question
4 whether nicotine was the reason why people smoked, but
5 that was one study, many years ago.
6 And I think if you asked Dr. Kumar today,
7 he would have a different point of view.
8 Q. Move to strike as nonresponsive. You agree
9 that there are internal tobacco company documents that
10 indicate that nicotine is not addictive?
11 MR. FLERLAGE: Objection.
12 THE WITNESS: That it's not addictive?
13 Well, there are some that say it's
14 addictive. I suppose there are some that say it's not
15 addictive. I'd have to go back and look for them.
16 MR. SMITH: Q. Have you asked the
17 plaintiff lawyers to look for internal tobacco company
18 documents expressing the view that nicotine is not
19 addictive?
20 A. No.
21 MR. FLERLAGE: Objection.
22 MR. SMITH: Q. Have you yourself?
23 A. No.
24 Q. Have you yourself conducted a search for
25 internal tobacco company documents expressing the view
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1 that nicotine is not addictive?
2 A. Not specifically.

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3 Q. The plaintiffs' lawyers have not given you
4 any specific internal tobacco company documents
5 stating that nicotine is not addictive?
6 MR. FLERLAGE: Objection.
7 THE WITNESS: No, not that I recall.
8 MR. SMITH: I'm going to hand you a copy of
9 one exhibit --
10 MR. FLERLAGE: Objection. I'm going to
11 move to strike any questions based on Exhibit 14 as
12 having inadequate predicate.
13 (Defendants' Exhibit 15 was
14 marked for identification)
15 MR. SMITH: Q. I'm handing you a copy of
16 an exhibit which has been marked 15, which is an
17 internal tobacco company document that was created by
18 A.K. Comer, C-O-M-E-R, entitled Dependence on
19 Cigarette Smoking - A Review.
20 Have you seen that document before?
21 MR. FLERLAGE: For the record, I might have
22 missed it too. I don't know if you asked any
23 questions directly from Exhibit 13, but I'm going to
24 move to strike Exhibit 13, and any questions based on
25 it, for inadequate predicate.
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1 MR. STOLPER: On Exhibit 15, how have you
2 identified it?
3 MS. McDEVITT: A.K. Comer.
4 MR. FLERLAGE: What page are you on?
5 MS. McDEVITT: I've turned over the exhibit
6 to get to the second page, the back side of the copy.
7 MR. STOLPER: Can you read the Bates
8 numbers into the record so we know which document
9 we're talking about?
10 MR. SMITH: That document Bates number, it
11 looks like starts out with -- well, it looks like
12 there are two documents attached together.
13 One is a cover sheet with Bates No.
14 103411606. The other is the beginning of the report
15 starting on page two, which is 105458896. Why don't
16 we just skip that document, since there's been so much
17 confusion among the plaintiffs' lawyers about it.
18 MR. FLERLAGE: I'm not confused.
19 I'd love to have some questions on this.
20 MR. SMITH: Q. Is that a document you've
21 seen before, Doctor?
22 A. Yes.
23 Q. You've seen the Comer document, and that's
24 something you would rely on for your testimony?
25 MR. FLERLAGE: Objection.
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1 THE WITNESS: I've seen it.
2 I'd have to go over it again to remind
3 myself what's in it, but I have seen it.
4 MR. SMITH: Q. You testified about youth
5 smoking and addiction before the Federal Trade
6 Commission in 1998 in a case involving R.J. Reynolds.
7 That's correct, right?
8 A. Yes.
9 Q. Have your opinions about youth smoking and

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10 addiction changed since your FTC testimony?
11 A. I don't think so.
12 Q. Do you know that many substances, including
13 nicotine, cause receptor up-regulation?
14 A. Yes.
15 Q. Do you agree that relatively little is
16 known of the consequences of receptor up-regulation?
17 MR. FLERLAGE: Objection.
18 THE WITNESS: It depends what you mean by
19 "consequences."
20 MR. SMITH: I'm going to hand you a copy of
21 an article that I'll mark as Exhibit 16.
22 (Defendants' Exhibit 16 was
23 marked for identification)
24 MR. SMITH: Q. It's by S.J. Heishman,
25 spelled H-E-I-S-H-M-A-N, and yourself, entitled
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1 Society for Research on Nicotine and Tobacco,
2 published in 1997.
3 If you turn to page 616, in the second
4 column beginning, "It would appear," you see that it
5 states, "Although it is generally assumed that this
6 change in receptor number is an important factor in
7 the development of tolerance to and/or dependence upon
8 nicotine, relatively little is known of the
9 consequences of receptor up-regulation."
10 MR. FLERLAGE: Objection.
11 THE WITNESS: I can't find that, but I
12 assume it's here somewhere.
13 MR. FLERLAGE: Can you point to where it is
14 in the text?
15 MS. McDEVITT: It's three sentences into
16 the first full paragraph of the second column.
17 MR. SMITH: Q. Do you see that sentence
18 beginning, "Although it is generally assumed"?
19 A. What page?
20 Q. It's on page 616.
21 Maybe the plaintiffs' lawyers can point it
22 out, since they seem to know where it is.
23 A. Oh, yes. I see it.
24 Q. You see that?
25 A. Yes.
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1 Q. Would you agree that relatively little is
2 known about the consequences of receptor
3 up-regulation?
4 MR. FLERLAGE: Objection. You can answer.
5 THE WITNESS: Again, it depends what you
6 mean by "consequences." In terms of behavioral
7 consequences, it's not... it's not fully clear what it
8 means. Certainly it has consequences with respect to
9 responsiveness of receptors engrained to a lot of
10 neurochemical changes. There are things that have
11 been correlated with up-regulator.
12 MR. SMITH: Q. You'll agree that
13 relatively little is known about the behavioral
14 consequences of receptor up-regulation?
15 A. Yes.
16 MR. STOLPER: Objection.

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17 MR. SMITH: Q. Are you aware that chronic
18 cocaine and heroin use cause down-regulation of
19 receptors?
20 A. Yes.
21 Q. You assisted in producing a medical report
22 in 1994 on youth smoking?
23 A. Yes.
24 Q. Have any of your views on youth smoking and
25 addiction changed since 1994?
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page 101
1 MR. FLERLAGE: Objection.
2 THE WITNESS: No, no.
3 MR. SMITH: Q. You mentioned in your FTC
4 testimony in the R.J. Reynolds case that you are about
5 to start research with Barbara Mociscki,
6 M-O-C-I-S-C-K-I.
7 A. Yes.
8 Q. Have you obtained any results from that
9 research?
10 A. No. We have collected data from the first
11 survey of the kids, the first of six surveys done over
12 three years, and the data haven't been analyzed yet.
13 We've just collected them.
14 Q. When do you expect to do any data analysis
15 on that?
16 A. Well, it's a longitudinal study. We're
17 starting with ninth graders and studying them each
18 year through high school, so it probably will be two
19 or three years before we start looking. The purpose
20 of the study is to look at the acquisition of smoking.
21 Q. And so that wouldn't be something you would
22 rely on for your testimony in these cases?
23 A. No.
24 Q. You also mentioned that there were some
25 other people looking at addiction in youth, including
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1 Dr. Kendall and some NIH-funded researchers. Do you
2 know if they've obtained any results yet?
3 A. I do not.
4 Q. Do you agree that there are individual
5 differences in nicotine metabolism in humans?
6 A. Yes.
7 Q. Do you agree that only 25 percent of young
8 people who use cigarettes become addicted smokers?
9 A. Yes.
10 Q. Do you agree that there is individual
11 variability in the susceptibility to nicotine
12 addiction?
13 A. Yes.
14 Q. Do you agree that the basis for individual
15 variability in the susceptibility to nicotine
16 addiction is not yet known?
17 A. There's a lot of research on the question,
18 but it's not understood fully yet.
19 Q. Do you agree that the basis for individual
20 differences in the likelihood of successful smoking
21 cessation is unknown?
22 A. There's some things that are known, but
23 it's not fully understood.

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24 Q. What do you think is known so far about
25 differences in the ability to quit?
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1 A. Well, for example, people who have a
2 history of depression have a harder time quitting,
3 lower success rate. People... Schizophrenics have a
4 hard time quitting. People who have had... who have
5 chronic obstructive lung disease, for some reasons
6 have harder times quitting. People who have
7 coexistent addictions besides smoking, for example,
8 alcohol addiction as well as smoking, have trouble
9 quitting. So there are some factors we know. We
10 don't know everything, but we're learning about them.
11 Q. Are there any other factors that you can
12 think of that you haven't mentioned?
13 A. Well, obviously someone who is more highly
14 addicted in general, someone who started smoking
15 earlier, who is smoking more cigarettes per day, who
16 smoked for a longer total number of years, all those
17 things are also predictors of the success of quitting.
18 Q. And that's it?
19 MR. FLERLAGE: Objection.
20 THE WITNESS: That's all I can think of at
21 the minute.
22 MR. SMITH: Q. Would you agree that the
23 basis for individual differences in the development of
24 adverse health effects of smoking is unknown?
25 MR. FLERLAGE: I'm sorry, could you read
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page 104
1 that back?
2 MR. SMITH: Q. Would you agree that the
3 basis for individual differences in the development of
4 various diseases caused by smoking is unknown?
5 A. We know about co-factors or the risk
6 factors. For example, if you have high blood pressure
7 and you're a cigarette smoker, you have a more than
8 average chance of having a heart attack, so we know
9 that some factors do influence the risk. If you have
10 a family history of lung cancer and you start smoking,
11 you have a higher chance of developing lung cancer.
12 Q. And asbestos exposure would be predictive
13 of developing some diseases, including cancer, is that
14 right?
15 A. Asbestos research has been associated with
16 the research risk of smoking as well.
17 Q. Do you agree that 15- to 24-year-old
18 smokers are less likely than older smokers to develop
19 tobacco dependence?
20 MR. FLERLAGE: Objection.
21 THE WITNESS: It's phrased in a funny way,
22 "to develop." They start developing it when they
23 first start smoking. The question is how dependent
24 are they at particular ages, but a tobacco dependence
25 begins in adolescence, for most smokers.
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1 MR. SMITH: If you turn...
2 (Defendants' Exhibit 17 was

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3 marked for identification)
4 MR. SMITH: Q. I'm going to hand you a
5 copy of another exhibit, which is Exhibit 17, which is
6 an article entitled Comparative Epidemiology of
7 Dependence on Tobacco, Alcohol, Controlled Substances,
8 and Inhalants, published in Experimental and Clinical
9 Psychopharmacology.
10 If you turn to page 25, you see that in the
11 last full paragraph in the first --
12 A. 25?
13 Q. Yeah.
14 A. There's no page 25.
15 Q. Whoops. Maybe I screwed up there.
16 It's probably on page 245.
17 MR. FLERLAGE: Or 250.
18 MR. SMITH: It could be 250, too.
19 MR. FLERLAGE: We just don't know.
20 MR. SMITH: Well, why don't I just skip
21 over that, since I can't identify the page right now.
22 Q. Tobacco company scientists have published
23 research on the effects of nicotine on receptors in
24 the brain?
25 A. Yes.
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1 Q. Tobacco company scientists have published
2 research observing that nicotine in cigarettes can
3 cause the release of dopamine in the brain?
4 A. Yes.
5 Q. Tobacco company scientists have published
6 research showing that nicotine has effects on brain
7 waves?
8 A. Yes.
9 Q. Tobacco company scientists have published
10 research on the effects of nicotine in cigarettes on
11 stress?
12 A. Well, I don't remember publications.
13 It certainly has been studied and
14 documented in tobacco company documents. They could
15 have. I just don't remember the articles on stress
16 from the tobacco industry scientists.
17 Q. Tobacco company scientists have published
18 research indicating that nicotine in cigarettes has
19 mood-altering effects?
20 A. I think so.
21 Q. Tobacco company scientists have published
22 research indicating that nicotine is reinforcing?
23 A. I think they've debated that.
24 I'm again -- internal documents certainly
25 indicate research like that was done. I don't recall
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1 specifically industry scientists talking about
2 reinforcement. Could be, though.
3 (Defendants' Exhibit 18 was
4 marked for identification)
5 MR. SMITH: Q. Well, I'll hand you a copy
6 of Exhibit 18, which is an article by William Dunn
7 from Philip Morris that's entitled Smoking as a
8 Possible Inhibitor of Arousal, International Workshop
9 on the Behavioral Effects of Nicotine.

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10 If you look at the second page, Dunn states
11 in the first full paragraph, "I will assume that there
12 is a general, although not universal, agreement that
13 the reinforcing agent in smoke is nicotine."
14 MR. FLERLAGE: Objection.
15 THE WITNESS: Yes. I -- certainly Dunn has
16 published things like this. I thought you were
17 talking about experimental research. But no, there
18 are documents that say that nicotine is reinforcing.
19 MR. SMITH: Q. And tobacco company
20 scientists have publicly stated that nicotine is
21 reinforcing, such as in the Dunn article?
22 A. Yes.
23 Q. Tobacco company scientists have published
24 research indicating that smoking can be a compulsive
25 behavior?
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1 MR. FLERLAGE: Objection.
2 THE WITNESS: Again, I think -- Dunn has
3 published a statement about that. Whether he's
4 published research about it, I'm not sure.
5 MR. SMITH: Q. Why don't I clarify that
6 question, then, for you.
7 Would you agree that tobacco company
8 scientists have published public statements indicating
9 that smoking can be a compulsive behavior?
10 A. Yes.
11 MS. McDEVITT: Objection.
12 MR. SMITH: Q. Do you agree that there are
13 a number of factors that determine the amount of
14 nicotine that a smoker gets from a cigarette?
15 A. Yes.
16 Q. The intake of nicotine from a given
17 cigarette depends on puff volume?
18 A. Yes.
19 Q. The intake of nicotine from a given
20 cigarette depends on the depth of inhalation?
21 A. Yes.
22 Q. The intake of nicotine from a cigarette
23 depends on the dilution with room air?
24 A. Yes.
25 Q. The intake of nicotine from a given
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1 cigarette depends on the rate of puffing?
2 A. Yes, although that's hard to sort out from
3 total puff volume. They're related.
4 Q. The intake of nicotine from a given
5 cigarette depends on the intensity of puffing?
6 A. Yes.
7 Q. The dose of nicotine obtained from a given
8 cigarette cannot be predicted from the nicotine
9 content of the tobacco?
10 A. Yes.
11 Q. The dose of nicotine obtained from a given
12 cigarette cannot be predicted from the absorption
13 characteristics of its cigarette smoke?
14 A. Yes.
15 (Defendants' Exhibit 19 was
16 marked for identification)

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17 MR. SMITH: Q. I'm going to hand you a
18 copy of another exhibit, which is number 19, which is
19 an article by Michael Russell entitled Long-Term
20 Switching to Low-Tar Low-Nicotine Cigarettes,
21 published in the British Journal of Medicine in 1982.
22 That's something you've seen before?
23 A. Yes.
24 Q. And it's something that you would rely upon
25 in your testimony?

1 MR. FLERLAGE: Objection.
2 THE WITNESS: I've cited this in some of my
3 papers.
4 MR. SMITH: Q. If you turn to page 156,
5 Dr. Russell states, "Compensation for nicotine was
6 very incomplete, only 36 percent. It seems unlikely,
7 then, that the smokers had a strong need to maintain
8 nicotine intake."
9 MR. FLERLAGE: Objection.
10 THE WITNESS: That's what he says.
11 MR. SMITH: Q. Do you not -- do you
12 acknowledge that respected scientists such as
13 Dr. Russell have concluded that compensation is
14 incomplete?
15 MR. FLERLAGE: Objection.
16 MR. STOLPER: Objection.
17 THE WITNESS: Well, compensation is
18 incomplete in the experimental practice.
19 I think if you talked to Dr. Russell now
20 about the body of information -- and again, you're
21 presenting an article from 1982 and there has been 18
22 years of research since then, including a lot of work
23 from Dr. Russell, and there are different paradigms
24 for studying the titration phenomenon.
25 This is one paradigm. In this paradigm it

1 looks incomplete. In other paradigms it looks pretty
2 complete, so it depends on how you're studying it.
3 MR. SMITH: Q. So you would agree that
4 there are differences in the results, based on what
5 methodology is followed?
6 MR. FLERLAGE: Objection.
7 THE WITNESS: Right, but the bottom line is
8 what people are actually taking from the cigarettes as
9 they smoke them, and when that's done, not switching
10 studies, but actually surveying cigarettes of
11 different yields, you find that exposures are very
12 similar across a wide range of yields.
13 MR. SMITH: Q. Have you had any
14 conversations with Dr. Russell in the last several
15 years about smoker compensation?
16 A. I don't know. I've spent hours with him.
17 I know him and his wife. We went out for
18 dinner. I don't remember what we talked about.
19 Q. But you don't remember talking about smoker
20 compensation over dinner?
21 A. I don't think so.
22 Q. You acknowledge, though, that in the
23 experimental paradigm used by Russell in his article

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24 labeled Exhibit 19, that he found that the
25 compensation was incomplete?
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1 MR. FLERLAGE: Objection.
2 THE WITNESS: That's correct.
3 MR. SMITH: Q. Do you agree that
4 Dr. Russell and other respected scientists have
5 concluded that it is unlikely that smokers have a
6 strong need to maintain nicotine intake?
7 MR. FLERLAGE: Objection.
8 THE WITNESS: That's not his opinion
9 currently. It may be what he said in 1982, but that's
10 not his opinion at the present time.
11 MR. SMITH: Q. How do you know that?
12 A. I've had lots of conversations with him.
13 Q. And when was the last time you had a
14 conversation in which he indicated that that wasn't
15 his opinion?
16 A. I don't know the exact time, but I've...
17 I've known him for years. We've been to
18 lots of meetings together, we've talked about lots of
19 things together, and I know that he does not believe
20 that nicotine is not what maintains smoking.
21 Q. Are you aware of any publications where
22 Dr. Russell has repudiated his view that it's unlikely
23 that smokers have a strong need to maintain nicotine
24 intake?
25 A. Yes. He's reviewed book chapters. He gave
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1 a talk at the society, where he was given the
2 Ove-Ferno Research Award, and he talked about
3 titration and he's talked about that test too.
4 He's published chapters on them.
5 Q. Could you tell me what chapters those are?
6 A. I can't tell you offhand, but I'm sure I
7 could find them for you.
8 Q. And when was that speech that Dr. Russell
9 gave?
10 A. Maybe two years ago.
11 Q. On page... Let's leave it there. Strike
12 that. You agree that scientific studies have shown
13 that factors that affect cigarette smoke taste can
14 have effects on smoking behavior?
15 MR. FLERLAGE: Objection.
16 THE WITNESS: Yes.
17 MR. SMITH: Q. You agree that research has
18 been published that indicates smokers may compensate
19 for reductions in taste found in low-tar cigarettes?
20 MR. FLERLAGE: Objection.
21 THE WITNESS: At least in the short term.
22 (Defendants' Exhibit 20 was
23 marked for identification)
24 MR. SMITH: Q. I'm going to hand you a
25 copy of another exhibit which we'll mark as
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1 Exhibit 20, and it's an internal tobacco company
2 document by A.K. Comer, C-O-M-E-R, entitled

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3 Compensation - A Summary of Current Views, dated
4 March 2, 1982. Is that what's in front of you?
5 A. Yes.
6 Q. On page four you see the Comer document
7 states, "Compensation may be a response to changes in
8 nicotine delivery but there is no clear evidence for
9 this"?
10 MR. FLERLAGE: Objection.
11 THE WITNESS: That's what it states.
12 I haven't had a chance to read the rest of
13 the document, but it does say that.
14 MR. SMITH: Q. Would you like to take the
15 time to review the document or not?
16 A. Sure. Okay.
17 Q. You're done reviewing the document?
18 A. Yes.
19 Q. If you turn to page four you see the Comer
20 document states, "Compensation may be a response to
21 changes in nicotine delivery but there is no clear
22 evidence for this."
23 MR. FLERLAGE: Objection.
24 THE WITNESS: Yes.
25 MR. SMITH: Q. At the time the Comer
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1 document was written in 1982, outside scientists had
2 been doing research on smoker compensation with
3 nicotine for a number of years, is that correct?
4 MR. FLERLAGE: Objection.
5 THE WITNESS: Yes.
6 MR. SMITH: Q. You agree that tobacco
7 company scientists, much like outside researchers such
8 as Dr. Russell, looked at whether smokers compensated
9 for changes in nicotine delivery?
10 MS. McDEVITT: Objection.
11 MR. FLERLAGE: Objection.
12 THE WITNESS: Yes.
13 MR. SMITH: Q. Would you agree that some
14 tobacco scientists, such as Ms. Comer, concluded that
15 there was no clear evidence that smoker compensation
16 was a response to changes in the nicotine delivery?
17 MS. McDEVITT: Objection.
18 MR. FLERLAGE: Objection.
19 THE WITNESS: Well, I don't know who
20 Ms. Comer is with respect to her being a scientist or
21 not, but that's what she said in her document.
22 MR. SMITH: Q. And you acknowledge that
23 she's a tobacco company employee, though?
24 MR. FLERLAGE: Objection.
25 MS. McDEVITT: Objection.
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1 THE WITNESS: Well, I assume so, but I
2 don't know.
3 MR. SMITH: Q. You see that the Comer
4 document goes on to state that, "If compensation does
5 occur, it does so in a multifactorial system involving
6 a wide variety of variable parameters"?
7 MR. FLERLAGE: Objection.
8 THE WITNESS: Yes.
9 MR. SMITH: Q. In 1982 there were tobacco

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10 company employees that were not sure if smoker
11 compensation occurred?
12 MR. FLERLAGE: Objection.
13 MR. STOLPER: Is that question related to
14 the document?
15 MR. FLERLAGE: Yes, did you say '82 or '62?
16 MR. SMITH: '82.
17 Why don't I restate the question.
18 Q. In 1982 there were tobacco company
19 scientists that were not sure if smoker compensation
20 occurred?
21 MR. FLERLAGE: Objection.
22 THE WITNESS: On the same document she
23 says, "Some people will compensate, others will not."
24 And then she says, "If compensation does occur." So I
25 don't think she's saying that compensation does not
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1 occur at all. I think she's saying that in some
2 people compensation does not occur.
3 MR. SMITH: Q. So in 1982 there were some
4 tobacco company scientists who thought that in some
5 people there is no compensation?
6 MR. FLERLAGE: Objection.
7 I thought this was 1962.
8 MR. SMITH: It's a 1982 document.
9 MR. FLERLAGE: '82, okay. Sorry.
10 THE WITNESS: Yes.
11 MR. SMITH: Q. The document is a 1982
12 document, right, Dr. Benowitz?
13 A. Yes.
14 Q. In 1982 there were tobacco company
15 scientists that concluded that if smokers did indeed
16 compensate, then that behavior was based on a number
17 of factors?
18 MR. FLERLAGE: Objection.
19 MS. McDEVITT: Objection.
20 MR. STOLPER: Objection.
21 THE WITNESS: Well, there's at least one
22 scientist.
23 MR. SMITH: Q. Have you done any search
24 through the tobacco company documents for statements
25 by tobacco company researchers indicating their belief
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1 that smokers don't compensate?
2 MR. FLERLAGE: Objection.
3 THE WITNESS: Not specifically.
4 MR. SMITH: Q. You've seen tobacco company
5 documents that indicate that smokers may compensate
6 for reductions in tar in low-yield cigarettes?
7 MR. FLERLAGE: Objection.
8 THE WITNESS: Yes.
9 (Defendants' Exhibit 21 was
10 marked for identification)
11 MR. SMITH: Q. I'm handing you a copy of
12 another exhibit, which is number 21, which is another
13 internal tobacco company document by Gough, G-O-U-G-H,
14 and Thornton entitled Compensation: A Review --
15 MR. FLERLAGE: Let me just get an objection
16 to reliance or use of the last document for inadequate

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17 predicate.
18 MR. SMITH: Q. If you turn to page 35 of
19 the document, Exhibit 20 --
20 MR. FLERLAGE: 20 or 21?
21 MR. SMITH: Q. Sorry about that. Why
22 don't I start over again. If you turn to page 35 --
23 A. Yes.
24 Q. -- the document states, "Taken together the
25 results described in this report seem to indicate that
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1 although nicotine plays a part in determining smoking
2 behavior, the response to a change in nicotine
3 delivery is on average, less than half of that
4 necessary to fully compensate, suggesting that it is
5 by no means the only factor involved."
6 MR. FLERLAGE: Objection.
7 MR. SMITH: Q. Do you see that?
8 A. Yes.
9 Q. The tobacco company scientists, much like
10 outside researchers, concluded that nicotine plays a
11 part in determining smoking behavior?
12 MR. FLERLAGE: Objection.
13 THE WITNESS: Yes.
14 MR. SMITH: Q. Tobacco company scientists
15 determined that smokers do not fully compensate for
16 reductions in nicotine delivery?
17 MR. FLERLAGE: Objection.
18 THE WITNESS: At least some do.
19 MR. SMITH: Q. Tobacco company scientists
20 concluded that nicotine is not the only factor
21 involved in smoker compensation?
22 MR. FLERLAGE: Objection.
23 THE WITNESS: Yes.
24 MR. SMITH: Q. And you recognize
25 Dr. Thornton as a tobacco scientist? He was involved
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1 in the publication of a book, Smoking Behaviour?
2 A. Yes.
3 MR. FLERLAGE: Objection.
4 (Defendants' Exhibit 22 was
5 marked for identification)
6 MR. SMITH: Q. I'm handing you a copy of
7 another document which is Exhibit 22, which is a copy
8 of an article by Sidney Green entitled Ranking
9 Cigarette Brands on Smoke Deliveries, published in the
10 book Smoking Behaviour in 1978.
11 Is that what's in front of you?
12 A. Yes.
13 Q. And that book, Smoking Behaviour, was
14 edited by Raymond Thornton?
15 A. Yes.
16 Q. And Thornton was the author of Exhibit 21,
17 which was an internal BAT Co document?
18 Or one of the authors.
19 A. Yes.
20 Q. You know that Sidney Green was an employee
21 of BAT Co?
22 A. No, I did not know that.
23 Q. If you turn to the last three pages where

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24 they list the participants in the conference
25 alphabetically, do you see Sidney Green's name?

1 A. Yes, yes.
2 Q. So the Smoking Behaviour book identifies
3 Dr. Green as an employee of British-American Tobacco?
4 A. Yes.
5 Q. Just to clarify the record, that's
6 British-American Tobacco Company, right?
7 A. Yes.
8 Q. That's what Dr. Green is, an employee of
9 British-American Tobacco Company, right?
10 A. Yes.
11 Q. Raymond Thornton was also an employee of
12 British-American Tobacco Company, right?
13 A. Yes.
14 Q. You know that the 1978 Thornton book
15 contains papers presented at a 1977 conference on
16 smoking behavior attended by tobacco company
17 scientists, outside scientists, and representatives
18 from government?
19 MR. FLERLAGE: Objection.
20 THE WITNESS: I know the first two
21 categories were there. I don't know about
22 representatives from government, but could be.
23 MR. SMITH: Q. And you know that the 1978
24 Thornton book contains research on smoker compensation
25 conducted by BAT Co scientist David Creighton?

1 MR. FLERLAGE: Objection.
2 THE WITNESS: You're asking me if I know if
3 it contains research?
4 MR. SMITH: Q. Yes.
5 A. I don't recall. There's a paper here that
6 you gave me, but I don't recall which was -- exactly
7 what was in the book.
8 Q. If you turn to the table of contents, you
9 see the number -- the seven -- number seven article is
10 an article by Comer and Creighton?
11 MR. FLERLAGE: Objection.
12 THE WITNESS: Yes, yes.
13 MR. SMITH: Q. So both Comer, C-O-M-E-R,
14 and Creighton, C-R-E-I-G-H-T-O-N, were BAT Co
15 scientists who published research on smoking behavior
16 in the 1978 Thornton book?
17 MR. FLERLAGE: Objection.
18 THE WITNESS: Yes. That's how it appears.
19 MR. SMITH: Q. And you know that the 1978
20 Thornton book also contains research on smoker
21 compensation and brand ranking tables by Sidney Green,
22 which is what's in front of you?
23 MR. STOLPER: Objection. If you're going
24 to ask questions, Doug, about the document, I'd like
25 you to distinguish between what he knows about the

1 document you just presented, or what he knows
2 generally. You haven't asked him if he's ever seen

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3 this document before, if he attended the conference,
4 or anything. So you're asking him these questions
5 without tying it to the document. It's unclear from
6 where you're getting the information in response.
7 MR. SMITH: That's an inappropriate
8 speaking objection. It's taking unnecessary time.
9 Q. Dr. Benowitz, you've seen this book many
10 times before, right?
11 A. Yes.
12 Q. And you've actually probably testified
13 about it in the past, haven't you?
14 A. Possibly.
15 Q. On page 381, in the second sentence,
16 Dr. Green states, "And people do not smoke cigarettes
17 like machines; they do not necessarily smoke
18 successive cigarettes of the same brand in the same
19 way and it is unlikely that different brands are
20 smoked in the same way."
21 MR. STOLPER: Objection.
22 What's the question?
23 MR. FLERLAGE: Objection.
24 MR. SMITH: Q. Do you see that?
25 MR. FLERLAGE: Objection.
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1 THE WITNESS: No, on 381 I just see a
2 table.
3 MR. SMITH: Q. It's on page 383. If you
4 turn to page 383, you'll see that it states, "And
5 people do not smoke cigarettes like machines."
6 A. Yes.
7 MR. FLERLAGE: Objection.
8 MR. SMITH: Q. Do you see that the Green
9 article states that smokers do not necessarily smoke
10 successive cigarettes of the same brand in the same
11 way, and that it's unlikely that different brands are
12 smoked in the same way?
13 MR. FLERLAGE: Objection.
14 THE WITNESS: Yes.
15 MR. SMITH: Q. In the late 1970s tobacco
16 company employees such as Dr. Green publicly stated
17 that human smokers do not get the same deliveries of
18 tar and nicotine that are obtained using machine
19 smoking.
20 MR. FLERLAGE: Wait a minute, wait a
21 minute. Objection. Do you have something you want to
22 show him that says there was some public statement?
23 MR. SMITH: I'm just asking him, and this
24 is the public statement right here.
25 MR. FLERLAGE: I'm the public. I've never
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1 seen it before. Why don't you show him something that
2 the public saw. Objection.
3 MR. SMITH: You're making unnecessary
4 speaking objections.
5 MR. FLERLAGE: That's not an unnecessary
6 speaking objection. You've been doing this all
7 morning. As far as I'm concerned, you're wasting
8 everybody's time. These documents speak for
9 themselves. You're not asking the expert witness here

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10 for conclusions based on anything that may be written,
11 you're not asking for any opinion. He's an expert in
12 this case. You're wasting everybody's time by reading
13 things out of documents that may or may not be useful.
14 MR. SMITH: I have been asking his opinions
15 about the historical knowledge in the scientific
16 community, and those speaking objections are just
17 drawing out the deposition.
18 MR. FLERLAGE: And those historical
19 documents will speak for themselves on the stand.
20 MR. SMITH: Q. Dr. Benowitz, you know that
21 in the late 1970s tobacco company employees such as
22 Dr. Green publicly stated that human smokers do not
23 get the same deliveries of tar and nicotine that are
24 obtained using machine smoking?
25 MR. FLERLAGE: Objection.
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1 MR. STOLPER: Objection.
2 MR. FLERLAGE: Unless you get a definition
3 of "publicly" and how it was presented to the general
4 public, which is my understanding of public, be very
5 cautious answering that.
6 MR. SMITH: I think you're coaching the
7 witness now and making unnecessary speaking
8 objections.
9 MR. FLERLAGE: Answer it, if you can.
10 THE WITNESS: Well, it is stated in this
11 chapter. What you said is stated in this chapter.
12 I have no idea what they did in different
13 contexts, but it was published in this book.
14 MR. SMITH: Q. And the scientists that
15 attended the conference sponsored by BAT Co would be
16 aware of Dr. Green's view that the machines do not
17 give the same values that might actually be obtained
18 with human smokers?
19 MR. FLERLAGE: Objection.
20 MS. McDEVITT: Objection.
21 MR. FLERLAGE: Definition of "aware."
22 THE WITNESS: Well, I -- again, I don't
23 know what the verbally presented paper was, but
24 insofar as they received a copy of the book, which
25 they would have, they would have gotten this chapter.
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1 MR. SMITH: Q. And you're aware, based on
2 your review of the book, that Dr. Green did state that
3 the machine values aren't necessarily the same as what
4 actually -- what the actual values that smokers get?
5 MR. FLERLAGE: Objection.
6 THE WITNESS: He does say that, that's
7 correct.
8 MR. SMITH: Q. Green goes on to reference
9 some work at BAT Co which demonstrates that smokers
10 smoke cigarettes differently than smoking machines.
11 MR. FLERLAGE: Objection.
12 THE WITNESS: Yes.
13 MR. SMITH: Q. In the late 1970s, BAT Co
14 scientists such as Dr. Green published research
15 indicating that smokers obtained different deliveries
16 of tar and nicotine than were obtained using machine

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17 smoking?
18 MR. STOLPER: Objection.
19 MR. FLERLAGE: Objection.
20 THE WITNESS: That's what it says.
21 MR. SMITH: I'm going to move along to
22 another exhibit, which is Exhibit...
23 Do you want to take a break?
24 THE WITNESS: I don't mind going on, but I
25 think at some point in time I'd like to just get a
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1 sandwich.
2 MR. SMITH: Do you want to take a break
3 now?
4 (A discussion was held off the record)
5 (A lunch recess was taken from 1:31 to 2:37 p.m.)
6 (Mr. LoScalzo joined the deposition)
7 EXAMINATION BY MR. STEIN
8 MR. STEIN: Q. Good afternoon,
9 Dr. Benowitz. My name is Adam Stein. I represent
10 B.A.T Industries in this action, and I just have a few
11 questions. Are you familiar with B.A.T Industries?
12 MR. FLERLAGE: Objection.
13 THE WITNESS: I really don't know the
14 difference between B.A.T Tobacco Company and
15 Industries. I don't.
16 MR. STEIN: Q. Do you know that
17 B.A.T Industries, a holding company, was formed in
18 1986 and is not a tobacco operating company?
19 A. No.
20 Q. Do you know what a holding company is?
21 A. In a lay term, it's a company which owns
22 other companies.
23 Q. That holds stock in other companies?
24 A. Yes.
25 Q. That's part of your understanding?
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1 A. Yes.
2 Q. In this particular case, do you know which
3 tobacco companies B.A.T Industries does hold stock in?
4 A. No.
5 MR. STOLPER: Can we go off the record for
6 just one second?
7 MR. STEIN: Sure.
8 (A discussion was held off the record)
9 MR. STEIN: Q. Just for clarification, I
10 represent -- Dr. Benowitz, I represent
11 B.A.T Industries in all three of the cases that have
12 been noticed here, and if for some reason I ask you a
13 specific question about a specific case, I'll let you
14 know; but otherwise, if it's already in the room, I'd
15 just as soon treat it as one, for the time being.
16 Thank you.
17 Dr. Benowitz, I'd like to just refer you
18 for a minute to your expert report in this case,
19 National Asbestos case; which, if I understand Counsel
20 correctly, is reflected in a document dated July 9,
21 1998 in the Maryland tobacco litigation.
22 MR. FLERLAGE: That's correct.
23 It's captioned reference Maryland Tobacco

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24 Litigation, dated July 9th, 1998, yes.
25 MR. STEIN: Q. And in that expert report,
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1 I take it that that report expresses your opinion not
2 only in National Asbestos, but if you were to compare
3 those opinions to the other expert reports in the
4 cases that we're here for today, those opinions are
5 essentially the same, is that right?
6 A. Yes.
7 Q. In your report you refer to certain tests
8 that were conducted by Battelle, that's
9 B-A-T-T-E-L-L-E, on behalf of British-American Tobacco
10 Company -- I'll refer to it as BAT Co -- in the early
11 1960s, on the pharmacological effects of nicotine.
12 Am I right about that?
13 A. Yes.
14 Q. And those projects were Project Hippo, do
15 you recall that?
16 A. Yes.
17 Q. Now in your report you use the term BAT,
18 B-A-T, and I take it that when you use that term
19 you're referring to BAT Co, British-American Tobacco
20 Company. Am I right about that?
21 A. Yes. It would seem so.
22 I did not really realize there was a B.A.T
23 Industries, so this would be BAT Co.
24 Q. Given that B.A.T Industries didn't come
25 into existence as a holding company until 1976, would
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1 you agree with me, Doctor, that it couldn't have had
2 any role in Project Hippo, with the decision of
3 whether to release those findings when that project
4 was completed?
5 MR. FLERLAGE: Objection.
6 May call for a legal conclusion.
7 THE WITNESS: Yes.
8 MR. STEIN: Q. So you're agreeing with me,
9 then?
10 A. Yes.
11 Q. Now do you recall being asked questions by
12 Mr. Bernick, in the Ohio Ironworkers case, about
13 Project Hippo?
14 A. Only vaguely.
15 Q. Do you recall whether or not you agreed
16 with Mr. Bernick that there wasn't any real new data
17 or any new ideas that were reflected in the Project
18 Hippo report? To use your words, that there was
19 nothing novel?
20 MS. McDEVITT: Objection.
21 THE WITNESS: I don't recall those words
22 specifically, but I shouldn't -- I could have said it.
23 MR. STEIN: Q. Do you have any basis to
24 disagree with that, sitting here today?
25 A. No.
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1 Q. Now that would certainly be true, then, in
2 1976 -- strike that. Project Hippo was in 1963 or

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3 thereabouts, am I right?
4 A. Yes.
5 Q. So the notion that there was nothing new or
6 anything novel in Project Hippo in 1963 would
7 certainly be true in 1976, isn't that right?
8 A. Yes.
9 MR. STOLPER: For clarification, are you
10 referring to his deposition or trial testimony?
11 MR. STEIN: Yes, trial testimony.
12 I apologize. Trial testimony.
13 Q. Now you testified in the Ironworkers trial
14 that you had reviewed six to eight boxes of documents
15 in your three to four years being involved as an
16 expert witness in these tobacco cases; do you recall
17 that?
18 A. Yes.
19 Q. Has that number increased in any
20 significant way since that point in time?
21 A. I don't think I've reviewed any more since
22 then.
23 Q. During your review of those documents, did
24 you come across anything that suggested to you that
25 B.A.T Industries had any role from 1976 onward, which
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1 is when it came into existence, in deciding whether
2 the Project Hippo reports should be released to the
3 public?
4 A. In my mind, I never separated BAT Co from
5 B.A.T Industries, so I would never have thought about
6 that one way or another.
7 Q. You're not here as an expert in corporate
8 governance, I take it?
9 A. Correct.
10 Q. You haven't undertaken any kind of a study
11 with respect to B.A.T Industries and its holding in
12 various tobacco companies?
13 A. That's correct.
14 Q. Let me ask a question in a slightly broader
15 way. As you sit here today, do you have any
16 recollection of any documents or of any facts relating
17 to conduct by B.A.T Industries that is relevant to
18 plaintiffs' claims in these cases?
19 A. No.
20 Q. And you're not relying on any documents by
21 B.A.T Industries in forming your opinions here, is
22 that right?
23 MR. STOLPER: Objection.
24 MR. FLERLAGE: Objection.
25 THE WITNESS: As I said before, I don't
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1 really know what documents that I read were BAT Co
2 versus B.A.T Industries.
3 MR. STEIN: Q. Do you recall seeing any
4 B.A.T Industries' documents?
5 A. Not offhand, but I never paid attention to
6 that distinction.
7 MR. STEIN: I have no further questions.
8 EXAMINATION BY MR. McDONNELL
9 MR. McDONNELL: Q. Dr. Benowitz, I'm

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10 Alfred McDonnell. You and I have met before.
11 I represent Philip Morris.
12 I want to get straight some of the mat -- a
13 matter raised by Mr. Stein in his questions. You have
14 submitted expert reports in all three of the cases
15 that we're here for today, is that right?
16 A. Yes.
17 Q. My reading of it suggested that the expert
18 report submitted in the Blue Cross/Blue Shield case
19 and in the Falise case was longer and covered more
20 information than the National Asbestos Workers, which
21 was a duplicate of what you submitted in Maryland.
22 Can you confirm that?
23 A. Yes, there were slight differences.
24 Q. Did you write all three reports yourself?
25 A. I think it started with the base report
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1 which I wrote, and then I was just asked to add
2 different things to that, and I just added those
3 things.
4 Q. Which was the base report that you wrote?
5 A. I think the Maryland report was the first
6 one. This was the oldest report, so this would be the
7 base report.
8 Q. So you wrote the Maryland report yourself?
9 A. Yes.
10 Q. And you added the things that are added in
11 in the other reports?
12 A. Yes.
13 Q. And the reports indicate what you intend to
14 testify about at trial?
15 A. I could, if I'm asked about those things,
16 yes.
17 Q. Are there any topics that you plan to
18 testify about at trial that are not in the reports?
19 A. I don't think so.
20 Q. A slightly different topic. We received a
21 list of documents by Bates numbers which had been sent
22 to you -- it said by plaintiffs' counsel.
23 Do you know the documents that I'm
24 referring to? And let me say, in connection with the
25 Blue Cross/Blue Shield case, and I believe also the
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1 National Asbestos Workers case. Do you know the
2 documents I'm talking about?
3 A. Not offhand.
4 Q. Do you recall receiving any documents from
5 counsel in connection with these cases?
6 A. Not specifically. But I... I'm going to
7 have to say that I just -- my storage room in my
8 basement has got tons of boxes of documents, and most
9 of them are duplicative of one another, and so I just
10 look through them and if I've seen them, I just sort
11 of file them away.
12 So I might not have paid attention to who
13 sent me the documents, if I've seen them before.
14 Q. Well, first of all, do you recall receiving
15 any documents in connection with first the National
16 Asbestos Workers litigation?

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17 A. Not specifically.
18 Q. Do you recall receiving any documents from
19 counsel in connection with the Blue Cross/Blue Shield
20 litigation?
21 A. No.
22 Q. And do you recall receiving any documents
23 from any lawyer, any counsel, in connection with the
24 Falise case?
25 A. I don't recall that.
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1 Q. You said that -- I believe you said that on
2 some occasions you have received documents, glanced at
3 them, said, "Gee, I think I've seen these before," and
4 put them aside?
5 A. Yes.
6 Q. Do you recall whether that happened in
7 connection with any one of these three cases?
8 A. I do not recall specifically.
9 Q. As I recall it's your practice, when you
10 review documents, to make notes?
11 A. Yes.
12 Q. Does that remain your practice?
13 A. Yes.
14 Q. Have you made any notes in connection with
15 the documents, any documents that you may have
16 reviewed in connection with this case -- these cases?
17 I'm sorry.
18 A. I did make some notes on the defense
19 experts' testimony -- not testimony -- their expert
20 statements.
21 Q. Their reports. Which ones, first of all?
22 A. I don't remember all of them, but two of
23 them were Dr. Rowell and Dr. Cloninger, and then there
24 were three tobacco products or technology experts.
25 I don't remember their names.
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1 Q. Do you remember what companies they were
2 from?
3 A. No.
4 MR. McDONNELL: I don't believe those have
5 been provided. Correct me if I'm wrong.
6 MR. FLERLAGE: No, we didn't send the
7 reports back, and to be honest with you, we didn't ask
8 that question in preparation, so we're not aware of
9 the notes. I think Counsel's already requested that
10 the reports be forwarded, and if you would send us the
11 notes with those, we'll provide them to you. Directly
12 to you? Do you want them to go to you?
13 MR. McDONNELL: No, send them to
14 Mr. Driscoll.
15 Q. And, Doctor, we did this once before and it
16 was -- turned out to be fairly elaborate, but I take
17 it we don't have the volume of notes this time that we
18 had before. We were willing to pay Dr. Benowitz'
19 secretary, who can read his writing, to type them up.
20 A. No, I dictated them to her.
21 Q. Would you be willing to do that again so we
22 get them in typed form?
23 MR. STOLPER: Did the check clear?

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24 THE WITNESS: Yes.
25 MR. McDONNELL: Q. Have you, in connection
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1 with your review of documents or your preparation for
2 this case, requested from counsel, any counsel in any
3 of the three cases, additional documents?
4 A. No. The only thing that I requested is
5 before the trial comes, we decide which documents
6 specifically they'd like me to comment on, and so I
7 just said that. I said prior to trial date let's
8 decide which documents, because right now it's not
9 been decided which documents I'll comment on.
10 Q. But you will be commenting on specific
11 documents, is your understanding?
12 A. Yes.
13 Q. And you don't know which ones they are now?
14 A. Correct.
15 Q. And we don't, I take it, know which ones
16 they are now, is that right? Well, we'll just...
17 I don't know if that's a problem or not.
18 It would be a problem for me.
19 MR. FLERLAGE: Well, I don't think so,
20 because there are going to be court orders governing
21 what gets turned over when, concerning trial
22 procedures and et cetera, for each of the three cases.
23 MR. McDONNELL: That may take care of it.
24 Q. Doctor, I'm just going to -- I had
25 anticipated, to be candid, that you would probably
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1 review the documents that counsel had sent out and I
2 had a bunch of questions prepared about them, which I
3 have to sort of rephrase now, and they may seem
4 extravagant, but I'm going to do it, in any event.
5 In your preparation for your review of this
6 case or in your review of documents, or in your review
7 of documents for any of the tobacco and health cases
8 that you've testified in, can you recall a statement,
9 any statement in any of those documents, that you
10 believe was untrue?
11 MR. FLERLAGE: Objection.
12 MR. McDONNELL: Q. Very difficult, but
13 it's difficult when the documents aren't identified,
14 and I apologize.
15 A. I'm not sure.
16 Untrue from what perspective?
17 Q. From any perspective.
18 MR. FLERLAGE: Objection.
19 THE WITNESS: Well, certainly there were
20 some documents -- I don't know that these were ones
21 that I testified -- dealing with the issues of whether
22 cigarette smoking causes disease, and some tobacco
23 documents saying that, "We don't think it causes
24 disease, and this is the sort of campaign we want to
25 put together to convince other people that it doesn't
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1 cause disease," so I think that's not correct.
2 MR. McDONNELL: Q. It's not correct that

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3 it -- that cigarette smoking doesn't cause disease?
4 A. Right.
5 Q. But you're not saying it's not correct that
6 the people who wrote the documents believed that when
7 they wrote it?
8 A. I can't tell.
9 Q. You don't know that?
10 A. That's correct.
11 Q. And you can't identify these documents
12 specifically?
13 MR. STOLPER: Objection.
14 THE WITNESS: Well, I could certainly...
15 You know the stack of papers I dictated for
16 you that was about this thick of my notes?
17 MR. McDONNELL: Q. Yes, I do.
18 A. If I had that, I could identify the
19 documents.
20 Q. But all I can deal with today is what you
21 can remember today.
22 A. Yeah. I cannot recall those offhand.
23 Q. Anything else?
24 MR. FLERLAGE: With regard to truth or...
25 MR. McDONNELL: Yes.
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1 Q. Any other statements that you believe are
2 untrue, that are in any of the...
3 A. I think that are untrue or I think the
4 writer was lying about?
5 Q. Well, the way you put it is, we don't think
6 it does, and let's have a campaign to tell people that
7 we don't think it does. I take it what you're saying
8 is, I disagree that it doesn't?
9 A. Right.
10 Q. If that's... If that's an untrue statement
11 in your -- in the way you're interpreting the
12 question, are there any other untrue statements that
13 you...?
14 A. I just can't...
15 MR. FLERLAGE: Objection.
16 THE WITNESS: I can't recall offhand any.
17 MR. McDONNELL: Q. What about information
18 in the documents, and this is a variation of a
19 question that I've asked you before -- information in
20 the documents that was significant scientific
21 information that the tobacco companies had that was
22 not in the possession of the public scientific
23 community?
24 A. Well, I've given some examples before.
25 For example, the Denoble research.
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1 Q. Acid aldehyde?
2 A. Acid aldehyde, nicotine reinforcement.
3 That line of research, I don't believe was
4 available elsewhere.
5 Q. To go back to the way I put my question,
6 are you prepared to testify that that was significant
7 scientific research? Have you reviewed it
8 significantly -- let me strike my question.
9 Have you reviewed that research

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10 significantly to be able to testify to the significant
11 scientific research?
12 MR. STOLPER: Objection. If you know what
13 "significant scientific research" means.
14 MR. McDONNELL: He does.
15 THE WITNESS: I've reviewed it and I think,
16 like a lot of research, it has a single bit of
17 information that may not be the answer to a huge
18 problem, but it gives extra information, so I think
19 it's meaningful research. I think that a lot of work
20 Denoble did was quite interesting and informative.
21 MR. McDONNELL: Q. Let's try to confine
22 yourself to my question, was the acid aldehyde work
23 significant scientific research, and you're answering
24 it by saying it was meaningful, and I'll accept that.
25 A. Yes, I think it was significant.
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1 Q. It's been available to people for at least
2 six to seven years, has it not?
3 A. I don't know how many years, but it's been
4 available for some time.
5 Q. Do you know whether a single scientist
6 anywhere in the world has followed up that research?
7 A. I don't know if it's been followed up by
8 scientists. It has been discussed, though, especially
9 in dealing with the idea of novel smoking products;
10 discussions about devices like Eclipse or Accord or
11 things like that, where you might generate acid
12 aldehyde nicotine. So it's come up in discussions
13 about reinforcement and does it matter, for example,
14 what the vehicle would be of delivering nicotine.
15 Q. You're referring to discussions?
16 A. Yes.
17 Q. Among whom?
18 A. People who are interested in the question
19 of new smoking products or nicotine delivery devices.
20 Q. Just who are you talking about?
21 A. Well, I think, besides myself, Bill
22 Rickert, Jack Henningfield, Richard Karchman, Don
23 DeBethizy.
24 Q. The latter two being tobacco company
25 scientists?
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1 A. Right. Saul Shiffman. Other people
2 interested in the question of new products and their
3 evaluation, really, in the question of does it matter
4 what the components of the new products are, does it
5 matter whether it's a glycerol delivery system which
6 might generate acid aldehyde, or whether it's some
7 other sort of system, and these questions will come up
8 in scientific discussion. So I think it is
9 information that's good to know.
10 Q. The first step would be for someone to try
11 to replicate Dr. Denoble's research?
12 A. Yes. And I don't know if anyone's tried to
13 do that.
14 Q. Is there anything in any of the
15 documents -- and I know this will draw the objection
16 and I know that it's very difficult to answer, but I'm

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17 in this position because I don't know what documents
18 we'll be talking about at trial -- that you believe
19 was misrepresented by Philip Morris?
20 By Philip Morris, firstly?
21 MR. STOLPER: Objection.
22 MR. FLERLAGE: Objection.
23 THE WITNESS: Anything in the documents?
24 MR. McDONNELL: Q. Any fact or event in
25 the documents which you believe was misrepresented by
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1 Philip Morris.
2 A. The only thing I can think of -- and I'm
3 not sure it's related to this case, it certainly was
4 related to a case I testified in before -- was the
5 issue of comparing the yields for, say, a full flavor
6 Marlboro versus, say, a Marlboro Light, where I
7 testified in the Henley case when she called Philip
8 Morris and she was concerned about the health risks,
9 she was -- it was suggested that she switch from full
10 flavor to Marlboro Lights but there are actually
11 internal documents testing the two and showing that
12 the exposures were quite similar in smokers smoking
13 the two kinds of cigarettes.
14 That would be misleading, not with respect
15 to the documents, but certainly with respect to
16 Mrs. Henley. And then the question is whether that is
17 relevant to advertising about low-yield cigarettes,
18 which never states that they're less hazardous but
19 certainly many smokers believe that.
20 Q. You don't have a reference to the document
21 to which you're referring?
22 A. No, but that was something that was
23 presented at the Henley trial.
24 Q. I think I know the document you're talking
25 about, but do you have a reference for it?
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1 A. I don't.
2 Q. Would you agree that the research that is
3 represented by the documents that you've looked at
4 represents really a huge amount of research?
5 A. Yes.
6 Q. Is there any of that that you criticize any
7 of the companies for doing?
8 A. Critical that they did research?
9 Q. That they did research, that's the
10 question.
11 A. No. I think that they should have done
12 research.
13 Q. Well, is there any research that they did
14 that you think that they shouldn't have done?
15 A. No, not that I can think of.
16 Q. Do you have your report from the -- for the
17 Blue Cross/Blue Shield case before you?
18 MR. FLERLAGE: Here's a copy of it.
19 MR. McDONNELL: Q. First of all, can you
20 confirm for me -- I think it's the case, but I haven't
21 laid them side by side -- that your reports for Falise
22 and Blue Cross/Blue Shield are identical?
23 A. Probably. I'm not even sure I have a copy

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24 of the final report for Falise. I think it was
25 developed for use in both cases at the same time.
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1 Q. Would you turn to page 26 of the Blue
2 Cross/Blue Shield report.
3 A. Yes.
4 Q. Page 26.
5 A. Yes.
6 Q. This is -- I think this is a topic that
7 you've testified glancingly about already today, but I
8 want to be sure. One engineering report is to add
9 ammonium salts to tobacco. That's in about the middle
10 of the first full paragraph.
11 A. Yes.
12 Q. Is that intended to be a statement that
13 cigarette companies add ammonium salts to tobacco, or
14 is it just --
15 A. Yes, that's meant --
16 Q. It's a statement of fact that it happens?
17 A. Yes.
18 Q. "While adding ammonia does not increase the
19 delivery of total nicotine in the smoke, it does
20 increase the amount of free (unproteinated) nicotine
21 in the smoke, which results in a greater perceived
22 nicotine impact by the smoker."
23 There's a number of statements -- there's a
24 number of statements there.
25 It does increase the amount of free
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1 (unproteinated) nicotine in the smoke. What's your --
2 what basis do you have for that statement?
3 A. Well, that would be the case if it
4 increases pH, and this -- we've talked about this
5 before. Some of the documents, including the
6 extensive material in the Shmuk report we talked about
7 earlier today and other documents, suggest that when
8 you do add ammonia, pH goes up.
9 The one case where it didn't change was the
10 cigarettes manufactured under the direction of
11 Dr. Cathy Ellis where it didn't change, and that I
12 can't explain, but if we assume that the other
13 documents are correct, saying if we add ammonium
14 salts, pH goes up, and when pH goes up, that will
15 change the ratio of coordinated to uncoordinated
16 nicotine.
17 Q. It would depend in part on the ability to
18 measure pH in smoke, would it not?
19 A. What?
20 Q. Whether it elevated the pH --
21 A. No.
22 Q. -- in cigarette smoke.
23 A. I mean, whether the research said it did?
24 Q. No. "It says while adding ammonia does not
25 increase the delivery of total nicotine in the smoke,
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1 it," adding ammonia, "does increase the amount of free
2 (unproteinated) nicotine in the smoke."

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3 A. Right.
4 Q. That would depend in part, that statement,
5 on whether one could measure accurately the pH of
6 whole smoke?
7 MR. STOLPER: Objection.
8 THE WITNESS: No, this would -- this
9 statement depends on whether pH actually increases.
10 Now whether you know whether that occurs or
11 not depends on the ability to measure it, but the
12 statement just says that assuming it increases, it's
13 going to change the unproteinated ratio.
14 MR. McDONNELL: Q. But whether or not it
15 increases is a question of fact which depends upon
16 your ability to measure it?
17 A. Correct.
18 Q. You referred to the Shmuk report earlier.
19 Do you know how they measured smoke to pH in 1928?
20 A. No. That's why I was looking forward to
21 reading the document. This is the first time I've
22 ever heard about it.
23 MR. FLERLAGE: By the way, is that the
24 document that's the whole Shmuk report?
25 MR. SMITH: Yes, that's the entire.
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1 You can spend hours poring over it.
2 MR. McDONNELL: Q. And it's certainly
3 possible to get different indications of the pH
4 tobacco in smoke, depending upon the measurement
5 technique utilized?
6 A. Yes. And I think that's more of a concern
7 with absolute pH. Relative pH should be still valid,
8 and some of the documents that R.J. Reynolds put
9 together back in the '80s, I think, certainly did
10 suggest that there's a difference between the pH of
11 cigarettes such as Marlboro versus Winston.
12 Q. Do you know what technique they used for
13 measuring smoke pH?
14 A. I forget offhand, but my point is not
15 whether this would give the different result from the
16 same technique, but if you see a difference in two
17 cigarettes, that difference should be valid. Even if
18 the technique is not accurate for the exact pH level,
19 it should still reflect a pH difference, and there was
20 a pretty substantial difference in the cigarettes.
21 Q. But I mean can you testify -- are you
22 willing to testify confidently that there was a
23 difference, without knowing the technique used to
24 measure? Any technique that shows a difference is
25 valid for the purpose of showing the difference?
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1 A. Well, I'd have to go back and look at
2 exactly what R.J. Reynolds did when they did that
3 test, but so far as I know if you have a test that's
4 applied consistently across cigarettes, even if
5 there's an intrinsic bias in the result based on the
6 technique, if you show a substantial difference -- and
7 I think the difference was pretty substantial, from a
8 pH of 5.5 to 6.5 -- something like that -- if you
9 applied the same test to both cigarettes, you should

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10 get -- you should see differences that reflect a real
11 difference.
12 Q. In today's world, if you wanted somebody to
13 give you the pH levels of tobacco smoke, to whom would
14 you go?
15 A. Well, the one I know best who does this is
16 Bill Rickert, who did the cigarettes for Cathy Ellis.
17 Q. So the cigarettes that you referred to
18 earlier in your testimony which did not show an
19 increase in pH from the addition of ammonia were
20 evaluated for that characteristic by Dr. Rickert in
21 Canada?
22 A. Yes.
23 Q. The next part of this sentence says, "which
24 results in a greater perceived nicotine impact by the
25 smoker." You're not talking there about a CNS -- let
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1 me strike that. Let me strike that question.
2 You're not talking there about an effect
3 mediated by the central nervous system, are you?
4 A. It might be, but not mediated by nicotine
5 being present in the brain. We've talked about this
6 before as well. When you talk about afferent nerves,
7 you activate the brain and you actually get brain wave
8 changes before nicotine gets to the brain, so it could
9 be a CNS contribution to it.
10 Q. When I say mediated by the CNS, I mean it
11 goes through the brain.
12 A. No.
13 Q. This is not an effect mediated by the
14 central nervous system, is it?
15 A. It's not mediated by nicotine acting in the
16 brain.
17 Q. Are you comfortable with calling that a
18 sensory effect?
19 A. Yes. But it still has a CNS mechanism as
20 part of it, but it's sensory stimulation effect.
21 Q. It's hard to think of things that don't
22 have a CNS component, isn't it? I mean everything you
23 touch, feel, smell, see has a CNS component.
24 A. In terms of brain, if, you know, someone
25 puts a hand in front of your face and you blink, it
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1 doesn't have to go to your brain.
2 There are local reflexes that deal with it.
3 If you touch something hot, you withdraw
4 before your brain even feels the pain.
5 Q. Well, but there is a CNS effect for both of
6 those events?
7 A. Well, there is, but the actual action is
8 through the spinal cord.
9 It doesn't need to go to the brain.
10 Q. You talk in your report a good deal about
11 the commonalties between heroin and cocaine on the one
12 hand, and nicotine on the other.
13 This afferent effect which you're
14 describing here is not one of the commonalties, is it?
15 A. I don't know much about the afferent
16 effects of heroin.

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17 Q. Did you ever hear anybody say that they use
18 heroin because it tastes good?
19 A. No.
20 Q. Because it smells good?
21 A. No. Not in particular.
22 Q. Cocaine?
23 A. No, cocaine doesn't have much of a smell.
24 There is a sensory effect that occurs with
25 cocaine, but it's not... it's not dealt with the same
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1 way as cigarettes, where people come to enjoy that
2 part of their experience of using the drug.
3 Q. Both of those two, if you'll let me say
4 this, classical drugs of abuse, addict by means of the
5 central nervous system?
6 A. Yes.
7 Q. You say it's a perceived nicotine impact.
8 Does that mean it's perceived as an impact
9 by nicotine --
10 A. No.
11 Q. -- or it's just perceived as an impact?
12 MR. FLERLAGE: Objection.
13 THE WITNESS: Actually, what -- "perceived"
14 is an adjective for "impact," really.
15 It's not -- it's not for nicotine.
16 MR. McDONNELL: Q. So the smoker perceives
17 an impact which may or may not be a nicotine impact?
18 A. Right. Although there are documents in the
19 industry that suggest that nicotine, that free
20 nicotine, does account for a substantial amount of the
21 impact.
22 Q. But it could also be ammonia?
23 A. Yes.
24 Q. Is it also clear to you, from your review
25 of the documents, that the companies believe that
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1 smokers like or enjoy this impact?
2 A. They come to like it.
3 Q. You say that as though everybody -- there
4 are documents that suggest that people don't initially
5 like it.
6 A. Well, in most -- I'm not sure what the
7 documents say. Most people, when they smoke the first
8 cigarette, don't especially like it. It's irritating,
9 they cough and sputter. After a while they come to
10 like the same sensations that they didn't like when
11 they smoked.
12 Q. You're speaking from general knowledge or
13 experience there?
14 A. Yes.
15 Q. And you're speaking about impact now, not
16 just the total smoking experience?
17 A. Yes. And there are other examples, too, of
18 how impact changes. When people switched from
19 nonfiltered to filtered cigarettes, the perception of
20 the people when they switched to filter is that these
21 things are bland, they're mild, they have no taste,
22 and after a while they came to enjoy them, once they'd
23 smoked them for awhile. And so what started with a

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24 cigarette with not enough impact, became a cigarette
25 with enough impact.
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1 Q. Are you critical of the tobacco companies
2 for responding to this consumer belief or consumer
3 preference for impact?
4 MR. STOLPER: Objection.
5 MR. FLERLAGE: Objection.
6 THE WITNESS: No.
7 MR. McDONNELL: Q. Is it any different in
8 principle if the tobacco companies discovered
9 something that made cigarette smoke have an aroma that
10 was more attractive to smokers?
11 MR. FLERLAGE: Is this what any different?
12 MR. McDONNELL: Pardon me?
13 MR. FLERLAGE: Is what any different?
14 MR. McDONNELL: Q. Is changing impact any
15 different than changing the aroma of tobacco smoke,
16 from your point of view?
17 MR. FLERLAGE: Objection.
18 THE WITNESS: Well, it could be, insofar as
19 with the nicotine-specific effects, based on the
20 research in animals, there does seem to be brain
21 activation mediated by nicotinic cholinergic receptors
22 in the airways. So there could be a difference
23 between nicotine and any random taste.
24 MR. McDONNELL: Q. But the difference
25 would be that the same kind of receptors that are in
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1 the brain are also found in the airway?
2 A. Yes.
3 Q. But is that a difference in principle, or
4 just a scientific artifact?
5 A. Well, it might mean that there is something
6 particular about a nicotine mediated taste, in terms
7 of effects on mood or behavior or something, than just
8 any random taste.
9 Q. When we... When we talked about this, I
10 think the first time was in your deposition for the
11 state of Washington, you said that a great deal of
12 work remained to be done on this area.
13 A. I think work still needs to be done.
14 It's a tricky area to research, but I think
15 research should be done.
16 Q. Not much research has been done.
17 MR. STOLPER: Objection.
18 MR. McDONNELL: Q. Is that correct?
19 MR. FLERLAGE: Objection.
20 THE WITNESS: I think we -- we've talked
21 about the body of information. There are the tobacco
22 company documents, there's the animal studies that
23 talk about the sensory stimulation and brain
24 activation.
25 MR. McDONNELL: Q. There were three
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1 articles, I think you gave.
2 A. Right.

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3 What hasn't been done yet is the study that
4 prompted my interaction with Dr. Ellis, which was to
5 look at cigarettes that are basically the same except
6 for pH, and see what different effects they have.
7 Q. And I understand you are dissatisfied to
8 some extent with the results of your -- the tests that
9 resulted from your interaction with Dr. Ellis, is that
10 correct?
11 A. Well, it's very perplexing, because all the
12 industry documents, everything that I've seen, says
13 when you add ammonia, pH goes up. And then Dr. Ellis
14 added ammonia to cigarettes and the pH didn't go up,
15 and it just didn't make sense unless all the other
16 documents were wrong. So it wasn't very satisfactory.
17 The only way to test the hypothesis that
18 cigarettes have higher ammonia is that they have
19 higher pH, and if you change the ammonia to
20 significantly affect the pH or for whatever reason and
21 the pH doesn't change, you can't change that
22 hypothesis because it doesn't change the effects of
23 ammonia.
24 Q. You've lost me on that one.
25 A. I'll start again.
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1 Q. Are you describing the conditions for a
2 test that you would find satisfactory if it were
3 performed?
4 A. From a scientific point of view, what I was
5 hoping to get from Dr. Ellis were Marlboro-type
6 cigarettes that were virtually the same except for the
7 pH of the smoke. And I anticipated that by adding
8 ammonia or ammonium salts, you would have a cigarette
9 with a higher pH. And that was based on everything I
10 read from lots of documents, and she came back and
11 said, "Well, we added ammonia and the pH did not
12 change." That surprised me. It did not seem
13 consistent with other reports, but since I don't make
14 cigarettes, I don't know how much ammonia you should
15 add or when other things can modify it. I didn't know
16 enough to know why it didn't work as expected, but the
17 final result was not useful for my hypothesis.
18 Q. And that's what I think -- if you'd just
19 finish this. It was not useful for the hypothesis,
20 because?
21 A. Because the hypothesis depends on having
22 cigarettes with different pH in the smoke.
23 Q. And if they have a different pH of smoke,
24 what is the property or the task, given that?
25 A. Then there's a higher amount of free
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1 nicotine in the smoke, and that's what I wanted to
2 test; whether it affected rapid onset of responses,
3 whether there was faster absorption into the arterial
4 bloodstream. A bunch of things.
5 I wanted to test with the different pHs.
6 Q. Well, just to wrap this up.
7 You say that based on the documents that
8 you have read, and let me stop for a second. The
9 documents that you've read in connection with these

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10 cases have been 100 percent selected for you by the
11 plaintiffs' lawyers, have they not?
12 MR. FLERLAGE: Objection.
13 THE WITNESS: Yes.
14 They have been provided to me by
15 plaintiffs' lawyers. I don't know how they selected
16 them, but they were provided to me by the lawyers.
17 MR. McDONNELL: Q. So if there were
18 documents in the files of Philip Morris or other
19 companies which suggested that pH was not enhanced by
20 the addition of ammonia or ammonium salts and they had
21 not been selected for your review by the plaintiffs'
22 lawyers, you would not have seen them?
23 A. Correct.
24 Q. And based on those documents, you expected
25 pH to rise when ammonia was added?
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1 A. Yes.
2 Q. And as I think you've said before, you
3 don't really have any way of knowing how those
4 cigarettes were made, et cetera, et cetera, but those
5 cigarettes were forwarded to Dr. Rickert, who
6 indicated that he tested them. Am I right so far?
7 A. Yes.
8 Q. And he found no significant increase in pH?
9 A. Correct.
10 Q. This is a sort of a funny question.
11 When Mr. Smith was questioning you earlier
12 about Jed Rose and Dr. Wald and others, you had some
13 trouble acknowledging that they were authorities.
14 Do you recall that?
15 A. Yes. I just don't like that term, because
16 "authority" has a connotation that whatever they say
17 is correct.
18 Q. Right. Are you an authority on nicotine?
19 A. Well, I publish a lot of work, and I think
20 I have got -- that a lot of my work is influential,
21 but if I publish something that's incorrect, if I have
22 a methodological question, I expect someone to not
23 believe it. So I guess it depends how "authority" is
24 used. Certainly in some contexts Dr. Rose is an
25 authority on sensory effects in nicotine.
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1 Does that mean that everything he says has
2 to be correct and I agree with it? No.
3 Q. Same thing with you?
4 A. Same thing with me, right.
5 Q. You were a -- I forget -- senior writer,
6 senior --
7 A. Scientific editor.
8 Q. -- of the surgeon general's report.
9 How many scientific editors were there?
10 A. Four.
11 Q. Yourself...
12 A. Dr. Henningfield, Dr. Lando, and
13 Dr. Grunberg.
14 Q. Were there any discussions that involved
15 you and any or all of the other three people about the
16 desirability of using the word "addictive" in the

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17 report?
18 A. Well, what we talked about was the issue
19 of -- we talked about what term to use, whether it
20 should be "addiction" or "dependence."
21 Q. So the answer is yes, there were
22 discussions?
23 A. Yeah, we talked about the pros and cons of
24 those.
25 Q. Would you agree -- and it was at least
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1 implicit in something you said to Mr. Smith -- is that
2 one effect of using the word "addiction" is to
3 stigmatize or associate a stigma with the person or
4 activity who is addictive or an addict?
5 MR. STOLPER: Objection.
6 MR. McDONNELL: Q. Do you agree with that?
7 A. Well, some people feel that. Some people
8 use that, and that is really a carryover from the
9 heroin addiction, where it was antisocial and there
10 was criminality associated with it. That's not the
11 intent for the use of "addiction."
12 Q. Without explaining it, the question I want
13 to put is are you -- are you familiar -- are you aware
14 that there are people in the public health community
15 that believe that one effective form of tobacco
16 control is stigmatization of smoking and smokers?
17 MR. FLERLAGE: Objection.
18 THE WITNESS: None of the people I deal
19 with -- I can't remember anyone saying that. There
20 are issues about changing the norm to make --
21 MR. McDONNELL: Q. Which norm?
22 A. Well, the norm of society, so that when
23 kids grow up, instead of seeing a norm that's with
24 smokers in it, the norm is nonsmoking. That's not the
25 same thing as stigmatizing smokers. So there may be
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1 people who view that, but I basically think that my
2 perspective, and people I know, are more trying to
3 assist smokers, rather than stigmatizing smokers.
4 Q. No one in those discussions with you or
5 Dr. Henningfield or Dr. Lando mentioned the benefits
6 of stigmatizing smokers or smoking and using the word
7 "addiction"?
8 A. I don't recall such a conversation.
9 MR. McDONNELL: That's all I have.
10 EXAMINATION BY MR. CONLON
11 MR. CONLON: Q. Let me just ask a couple
12 of questions. My name is Jim Conlon. I represent
13 Brown & Williamson in the Blue Cross case.
14 Doctor, you mentioned -- you were just
15 talking about stigmatizing.
16 In the sessions that you had with your
17 colleagues, when you discussed the term "addiction"
18 was there a discussion that it's inevitable that there
19 will be stigmatizing if you use the word "addiction"?
20 MS. McDEVITT: Objection.
21 THE WITNESS: Not stigmatization.
22 What we did talk about was the concern
23 whether it might discourage people from thinking they

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24 could quit, and we took it very seriously.
25 In fact, one of the conclusions of the
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1 report was that even though people become addicted,
2 they can quit. It takes effort and it takes repeated
3 efforts, but they can quit. And so we were concerned
4 about that as a potential negative effect. But I
5 don't recall conversations about stigmatization.
6 MR. CONLON: Q. Would you agree that
7 inevitably there is a stigmata to using the word
8 "addiction"?
9 MR. FLERLAGE: Objection.
10 THE WITNESS: For smoking, I'm not sure.
11 There used to be when addiction was really
12 heroin, but I think a lot of smokers will say to
13 themselves, "I'm addicted to smoking," and what they
14 really mean is loss of control, and I don't think that
15 they see it as a stigma.
16 I think historically it was a stigma, but I
17 don't think, for most people, it's a stigma today.
18 MR. CONLON: Q. And it became stigmaless
19 when?
20 MR. FLERLAGE: Objection.
21 THE WITNESS: I think when... what it
22 means, a change from sort of a social phenomenon,
23 crazed drug addict, to a more pharmacologic behavioral
24 definition, which is really problems controlling drug
25 use.
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1 MR. CONLON: Q. Wouldn't you agree that
2 "stigma" means socially inappropriate?
3 A. Yes.
4 Q. And is it true that you and your
5 colleagues, when you were talking about addiction,
6 thought there would be, by using the word, social
7 opprobrium?
8 MR. STOLPER: Objection.
9 THE WITNESS: I don't recall that
10 discussion. Our intent, in using this, was to stress
11 the commonality of the strength of loss of control
12 with different drugs that people understood, and I
13 don't recall conversations about social opprobrium.
14 MR. CONLON: Q. You were asked some
15 questions a little bit ago about the reports that you
16 wrote. I think we're talking about three of them
17 today. In connection with the Blue Cross/Blue Shield
18 report, is there any portion of that report you did
19 not write?
20 A. I don't think so. What I normally do, when
21 I'm asked to write a report, is I send them a --
22 Q. Send "them"?
23 A. The lawyers, the attorneys, a report and
24 say, "Is there anything else you would like to address
25 in my opinions at trial that I haven't covered here?"
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1 And they'll say, "Yes, I would like you to
2 cover things on these points," and I will add material

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3 and send it back.
4 Q. Did you do that with the Blue Cross/Blue
5 Shield reports?
6 A. Yes.
7 Q. Did you then get some riposte back,
8 suggesting that you should add certain things to that
9 report?
10 A. Yes. I think what's in the Blue Cross
11 report that's not present in the Maryland report would
12 have been as a consequence of being asked to add
13 something, and then I would have added it. Now the
14 reports are prepared by the attorneys' offices, in
15 terms of physical things. They do a much better job
16 than my secretary does, so that's why they actually
17 prepare it physically, but the writing is mine.
18 Q. And the suggestions to you by the lawyers
19 for additions, do you have those suggestions that the
20 lawyers wrote to you?
21 A. Do I have them written somewhere?
22 Q. Well, do you have what they wrote to you?
23 MR. STOLPER: Objection. Assumes that
24 there were things written to him.
25 MR. CONLON: I thought that's what he said.
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1 MR. STOLPER: He said he spoke to them.
2 MR. CONLON: I didn't hear that.
3 THE WITNESS: I think that, for example, in
4 the Blue Cross report, my guess was -- although I
5 don't have a complete recollection -- is that when I
6 visited the attorneys for the Blue Cross case in New
7 York, which I did about six months ago and talked
8 about my testimony, and we would have talked about my
9 report and then talked about whatever elements they
10 wanted me to testify about.
11 MR. CONLON: Q. Did you get a piece of
12 paper that said, "Here's what we want you to add"?
13 That's all I'm really asking.
14 A. I don't recall.
15 Q. And if you did, would you still have it?
16 A. Would I still have it? I don't know.
17 Q. In connection with your preparation for
18 your deposition, or in connection with your
19 preparation for the Blue Cross case itself, have you
20 reviewed any documents from Blue Cross?
21 From any of the Blue Cross entities?
22 A. No.
23 Q. Have you asked to see any Blue Cross
24 documents?
25 A. No.
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1 Q. Do you have any plan on seeing any Blue
2 Cross documents?
3 A. No.
4 Q. Have you been furnished any kind of
5 evidence that in fact the insurance executives at Blue
6 Cross relied on statements made by the tobacco
7 company?
8 A. No.
9 Q. Have you spoken to anybody at the Blue

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10 Cross entities in connection -- for example, any
11 medical directors at the Blue Cross entities?
12 A. No.
13 Q. Have you been furnished any testimony of
14 the medical directors at the Blue Cross entities?
15 A. No.
16 Q. Have you been furnished any testimony at
17 all regarding the Blue Cross entities?
18 A. No.
19 Q. Witnesses for the Blue Cross entities?
20 A. No.
21 Q. In connection with your report, I just
22 would like a little bit of clarification as to what
23 this means. On page -- I don't know if you have it in
24 front of you.
25 A. Yes.

1 Q. On page five, I guess it would be the first
2 full paragraph, last sentence, "I may."
3 A. Yes.
4 Q. If I understand you correctly, you have no
5 information regarding any individual discovery of
6 members of the Blue Cross plans?
7 A. That's correct.
8 Q. And what does that statement mean, then?
9 A. Well, if they were to provide me
10 information about the smoking life history of the
11 person, I would comment about -- they're smoking
12 comments about elements that they supported; that
13 they're addictive, et cetera.
14 Q. So you're looking for -- you may examine in
15 the future some testimony or medical records regarding
16 individual medical history, is that your answer?
17 A. If I'm asked to.
18 I have not been told that I will.
19 Q. You're unprepared to do that now?
20 A. That's correct.
21 Q. Now in connection -- there was some short
22 discussion, Doctor, about notes and note taking. I
23 guess you have a protocol for your note taking. You
24 took notes in the Blue Cross, for the Blue Cross case?
25 A. No. Actually, the only notes I took were

1 from the expert reports sent to me by the Angelos
2 firm. I don't think I've been sent any expert reports
3 by Blue Cross, as I recall.
4 Q. And do you have any notes in connection
5 with the Blue Cross case?
6 A. I don't believe so.
7 Q. Can I just refer you for a brief moment to
8 page 23, and the first paragraph. The first, second,
9 third -- it would be the third sentence.
10 A. Yes.
11 Q. "The addictiveness of nicotine makes it
12 impossible for youths to make an informed choice about
13 smoking." "Impossible." Is it not possible for
14 youths to make an informed choice about smoking, is
15 that your position?
16 A. Well, in some respects. I think that kids

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17 get a lot of education about the health effects of
18 smoking, and usually what kids say is, "I know smoking
19 is bad, but it's not so bad if I don't smoke for very
20 long, if I smoke for just a few years. And I want to
21 smoke. My friends are smoking. I'll smoke for a
22 while and if I stop, it's not going to harm me."
23 That is not an unreasonable decision, if in
24 fact they could stop smoking, but what they
25 consistently underestimate is how easy or hard it's
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1 going to be to quit smoking.
2 It's hard to make an informed decision
3 about addiction if you haven't been addicted, because
4 most people say, "Well, it's not going to happen to
5 me," but addiction in fact happens to a lot of kids,
6 once they start smoking for any period of time, and
7 then they have difficulty quitting.
8 So that part of it is what I say is hard to
9 understand. It's always underestimated.
10 Q. I appreciate that and I thank you for your
11 answer. I appreciate your answer, but I don't know
12 that I completely understood it.
13 If I understand the sentence right -- and
14 it's your sentence, and you can correct me -- it's
15 your position that the addictiveness of nicotine makes
16 it impossible for young people to make a choice about
17 smoking. An informed choice about smoking.
18 A. Right. About the benefits and risks to
19 smoking, for the reasons that I stated. There are two
20 elements -- well, no. The main element really is
21 whether it's going to be harmful to one's health.
22 Q. I'm listening. I'm sorry.
23 I'm trying to think of...
24 A. And if you say, okay, let's make that
25 decision, on what basis do you make it on? Well, the
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1 kid says, "I'm going to smoke for just two or three
2 years, I'm a teenager, and then I'm going to quit when
3 I have a family," and well, that's probably true, that
4 you're not going to incur much of a health risk.
5 That's a reasonable choice. But if you do
6 that with the assumption that you're going to quit
7 smoking in two or three years because I think, well,
8 I'm not going to become addicted. That's what happens
9 to somebody else, but in fact two or three years later
10 you can't quit, which is in fact what actually happens
11 to most kids once they start; well, there's no way to
12 be informed about the addiction risk before you're
13 addicted. There's no way to weigh that.
14 You can weigh the health risks but you
15 can't weigh the addiction risks, and that's my point
16 and that's what kids say, and what they say and what
17 happens to them is the basis for the statement.
18 Q. And so then the health risks that are
19 articulated, if I have your theory right, the health
20 risks that are articulated by the tobacco company and
21 by government and by all sorts of people are diluted,
22 is that your theory?
23 MR. FLERLAGE: Objection.

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24 THE WITNESS: No, not diluted.
25 The health risks from cigarette smoking
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1 occur primarily when you're a long-term smoker.
2 MR. CONLON: Q. I don't mean the health
3 risks. The health warnings, I'm sorry.
4 The health warnings.
5 A. Well, even the health warnings. The health
6 warnings are concerns if you're a long-term smoker,
7 like if you smoke in certain situations, like where
8 you're pregnant, there are certainly risks associated
9 with smoking. Most teenage girls who are smokers will
10 say, "I'm not going to smoke when I'm pregnant," but
11 then later on some can't quit.
12 So the issue is not that they don't
13 understand that it's potentially hazardous, although
14 they -- it might influence how hazardous they think
15 smoking is, just becoming a smoker, but what they
16 don't assess is whether they can quit when they intend
17 to quit. That's my point.
18 Q. So they understand the warnings, is that
19 true?
20 MS. McDEVITT: Objection. Do you mean the
21 warning labels or the warnings outside?
22 MR. CONLON: Q. Yes. Warnings in general.
23 A. I think kids who have gone through most
24 school systems today get education about the health
25 hazards of smoking. They know smoking is bad for
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1 their health, but they also know it's not just a
2 function of smoking but how long you smoke, and they
3 can say, "Well, even though I know this is bad for me,
4 if I don't smoke very long, it's not going to be very
5 bad for me." And so it's a decision that's made that,
6 "Well, I can reduce the risk by not smoking very
7 long," but the problem is that the smoking not very
8 long doesn't occur because they become addicted.
9 Q. In connection with the tobacco warnings --
10 and you have a section devoted to that on page 29 and
11 you suggest that -- and I don't need to read the whole
12 thing -- but you talk some about denial and you talk
13 about mandated health warnings on cigarette packs and
14 other warnings about smoking and health products
15 having a literal impact on the smoking behavior, is
16 that true?
17 A. Yes.
18 Q. And then you go on to suggest that there's
19 denial in some people as well, is that correct?
20 A. Yes.
21 Q. Now let me set aside the smoking for a
22 second. In the Blue Cross case, in connection with
23 the Blue Cross entities, the warnings about the
24 hazards of smoking are clear on the packaging, is that
25 correct?
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1 MR. FLERLAGE: Objection.
2 MS. McDEVITT: Objection.

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3 THE WITNESS: Yes and no.
4 I mean they're clear, in that they warn
5 about specific effects, health effects, but they also
6 always sort of qualify, such as "surgeon general's
7 warning." This is something that's been a big issue
8 for a long period of time. You could just say,
9 "Warning. Cigarette smoking causes cancer."
10 MR. CONLON: Q. The surgeon general
11 carries a lot of weight, is that true?
12 MR. FLERLAGE: Objection.
13 MR. STOLPER: Objection.
14 THE WITNESS: He does, but smokers see this
15 as sort of government, versus another opinion, when
16 it's qualified like that.
17 MR. CONLON: Q. I thought I said that.
18 Maybe I didn't. You can set aside, for a
19 second, the smoker. In fact, in the medical community
20 and in the scientific community there's no question
21 that the surgeon general has a lot of cachet?
22 MS. McDEVITT: Objection.
23 THE WITNESS: I think that's probably
24 correct.
25 MR. CONLON: Q. They're a highly
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1 authoritative source?
2 MR. FLERLAGE: Objection.
3 THE WITNESS: With my qualifications about
4 "authoritative source."
5 They're not really scientists, they're
6 people who translate scientists -- science into public
7 education material, policy sort of things.
8 MR. CONLON: Q. Are the reports of the
9 surgeon general authoritative or not authoritative?
10 MR. FLERLAGE: Objection.
11 THE WITNESS: Well, I'm not sure how the
12 term "authoritative" is used. It's a consensus
13 document of the current state of knowledge.
14 MR. CONLON: Q. My question is are the
15 reports of the surgeon general authoritative or not
16 authoritative?
17 MR. FLERLAGE: Objection.
18 MS. McDEVITT: Objection.
19 THE WITNESS: Well, I'm not sure what the
20 term means. For most people, they are authoritative.
21 Some people might not agree with that.
22 MR. CONLON: Q. In connection with the
23 issue we were just talking about, which was denial and
24 the fact that the health warnings have little impact
25 on the behavior of the smoker, in connection with the
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1 behavior of the insurance executives at Blue
2 Cross/Blue Shield entities, do you know whether the
3 surgeon general -- would you agree with me that the
4 surgeon general was an authoritative source for the
5 medical directors at those plans?
6 MR. FLERLAGE: Objection.
7 MR. STOLPER: Objection.
8 THE WITNESS: I really don't know anything
9 about the medical directors or how it's set up or

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10 anything.
11 MR. CONLON: Q. Now the medical directors,
12 do you know whether any of them are physicians?
13 A. I would hope so, but I don't know.
14 Q. Do you know whether all of them were
15 physicians?
16 A. No.
17 MR. STOLPER: Objection.
18 MR. CONLON: Q. Actually, in connection
19 with this document, this report, if you go to page
20 three, in the first paragraph -- or it's not the full
21 paragraph, it's the last sentence -- it's the second
22 complete sentence on that page three.
23 It says, "The reports." You wrote this?
24 A. Right.
25 Q. And you told us you wrote this report?
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1 "The reports of the surgeon general are
2 considered to be highly relevant, authoritative
3 sources in the scientific and medical communities."
4 That's what you write.
5 A. Yes.
6 Q. To the extent that in fact the surgeon
7 general was writing about cigarettes over time,
8 tobacco over time, that would be a relevant and
9 authoritative source to a medical director at Blue
10 Cross?
11 MR. STOLPER: Objection.
12 MR. FLERLAGE: Objection.
13 MR. CONLON: Pavlov.
14 MR. FLERLAGE: Only when you ask a lousy
15 question.
16 MR. CONLON: Q. Right?
17 Whew, that hurt me so much.
18 MR. FLERLAGE: Well, don't ask another.
19 MR. CONLON: All right, you're making me
20 feel bad.
21 THE WITNESS: I would assume, if the
22 medical directors are health professionals, then yes,
23 they would recognize this as a highly relevant source.
24 MR. CONLON: Q. Highly relevant and
25 authoritative?
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1 A. And authoritative.
2 Q. Have you seen any documents from any of the
3 insurance companies who serve as plaintiffs in the
4 Blue Cross case regarding wellness programs?
5 A. No.
6 MR. CONLON: Thanks for your courtesy,
7 Dr. Benowitz. Thank you very much.
8 THE WITNESS: You're welcome.
9 EXAMINATION BY MR. STILL
10 MR. STILL: Dr. Benowitz, my name is John
11 Still and I represent R.J. Reynolds.
12 Going back to your definition of
13 "addiction," I'm not sure you gave us a definition,
14 but you said it was characterized by loss of control,
15 is that correct?
16 A. Yes.

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17 Q. Do you mean that people who smoke have
18 absolutely no control over their actions, in terms of
19 when it comes to smoking?
20 A. Well, not no control, but there is a loss
21 of control over the drug use, which means that it's
22 difficult for them to stop using the drug.
23 Q. So what you're saying -- correct me if I'm
24 wrong -- is that the essence of addiction is
25 difficult?
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1 MS. McDEVITT: Objection.
2 THE WITNESS: Controlling the use of a
3 drug, that's correct.
4 MR. STILL: Q. Can you point to any
5 industry statements, internal or otherwise, that deny
6 that it could be difficult to quit smoking?
7 A. I can't think...
8 I can't think of any offhand.
9 Q. Concerning the 1964 surgeon general's
10 report, I think you testified previously that if the
11 surgeon general of '64 knew then what we know now --
12 "we" being whatever the scientific community, just
13 present day knowledge -- that the surgeon general,
14 using the criteria in '64, would still have labeled
15 cigarette smoking an habituation, rather than an
16 addiction?
17 A. Right, because the definition at that time
18 required intoxication, it required social damage, a
19 bunch of different things that are different from the
20 current criteria for drug addiction or dependence.
21 Q. Is addiction a purely physiologic
22 condition?
23 A. No.
24 Q. It has behavioral components?
25 A. Yeah, but I have to say, when you start
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1 talking about the division between physiologic and
2 behavior it's tricky, because behavior and physiology
3 are measured differently, but behavior is a
4 manifestation of physiology.
5 You manifest behaviors in certain ways
6 because your brain cells are telling you to behave in
7 certain ways, so they're intricately linked.
8 MR. STILL: That's all I have.
9 Thank you, Dr. Benowitz.
10 EXAMINATION BY MR. DRISCOLL
11 MR. DRISCOLL: Q. Dr. Benowitz, my name is
12 Robert Driscoll. I'm one of the attorneys that
13 represents Philip Morris in the National Asbestos
14 Workers case. I just want to clarify something that
15 you testified about.
16 MR. FLERLAGE: Can I ask for clarification?
17 You represent different entities or
18 different entities in different cases than counsel?
19 MR. DRISCOLL: Yes. I represent Philip
20 Morris in the National Asbestos Workers case.
21 MR. FLERLAGE: And you represent them in
22 something else?
23 MR. McDONNELL: Blue Cross/Blue Shield.

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24 MR. FLERLAGE: Got you. Thank you.
25 MR. DRISCOLL: Q. Doctor, I believe you
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1 testified you couldn't recall if you were sent
2 specific documents to review for this case.
3 A. That's correct.
4 Q. Doctor, let me represent to you that at
5 least in the National Asbestos case, and I presume the
6 other cases, the attorneys get lists of the documents
7 which we commonly refer to as reliance materials, sent
8 to us from plaintiffs' counsel, which are a list of
9 the documents that you considered in forming your
10 opinions. Did you have any involvement in developing
11 the list for the National Asbestos case?
12 A. No.
13 MR. DRISCOLL: No further questions.
14 MR. McDONNELL: Why don't we take a break.
15 (A recess was taken from 3:54 to 4:10 p.m.)
16 EXAMINATION BY MR. SMITH (RESUMED)
17 (Defendants' Exhibit 23 was
18 marked for identification)
19 MR. SMITH: Q. Dr. Benowitz, I'm handing
20 you a copy of Exhibit 23. It's an article by Hurt and
21 Robertson entitled Prying Open the Door to the Tobacco
22 Industry's Secrets About Nicotine, which was published
23 in 1998. That's one of the documents you're relying
24 on in the National Asbestos Workers case, is that
25 right?
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1 A. Yes.
2 Q. The Hurt and Robertson article is a review
3 of various internal tobacco company documents, is that
4 correct?
5 A. Yes.
6 Q. Do you know what methodology Hurt and
7 Robertson employed in picking the tobacco company
8 documents they reviewed?
9 A. I don't recall offhand if they were just
10 supplied with documents by the attorneys or if they
11 did an independent search. I'm not sure.
12 Q. Just to clarify the record.
13 You know that Hurt and Robertson testified
14 as expert witnesses against the tobacco industry in
15 the Minnesota attorney general case, right?
16 A. Yes.
17 Q. And you know that they received -- Hurt and
18 Robertson received tobacco company documents that were
19 from the plaintiffs' lawyers in the Minnesota case?
20 A. Yes.
21 Q. Do you know what methodology Hurt and
22 Robertson employed in deciding which of the tobacco
23 company documents in their possession they would write
24 about in their article?
25 A. No. What they state is that they were
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1 trying to pick documents that were representative of
2 different categories of statements.

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3 Q. Well, do you know whether there were any
4 tobacco company documents Hurt and Robertson saw that
5 they did not discuss in their 1998 article?
6 A. Yes, there were lots they did not discuss.
7 Like I say, they stated that they picked
8 out representative articles to comment on.
9 Q. Do you know which specific tobacco company
10 documents Hurt and Robertson reviewed in writing their
11 article?
12 A. They looked at documents from different
13 companies. From, I think, most of the companies, or
14 all of them.
15 Q. You don't have a list of the documents Hurt
16 and Robertson reviewed in writing their article?
17 A. Well, there's a bibliography, which is
18 essentially that list. Well, not what they reviewed.
19 What they commented on is in the bibliography. I
20 don't know what they reviewed to come to this list.
21 Q. And you haven't tried to collect together
22 the documents that Hurt and Robertson reviewed in
23 writing their article in the 1998 Journal of the
24 American Medical Association?
25 A. Well, I've seen all the ones that they
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1 discussed. I got all those.
2 Q. And have you come to any conclusions, after
3 reading the Hurt and Robertson article, that are any
4 different than the conclusions you reached after
5 looking at the tobacco company documents themselves?
6 A. No.
7 Q. Have you gone back to any of the original
8 tobacco company documents to make sure that Hurt and
9 Robertson are quoting them accurately?
10 A. No.
11 Q. Would it be fair to say that the Hurt and
12 Robertson article does not report the results of any
13 experimental studies that Hurt and Robertson conducted
14 by themselves?
15 A. That's correct.
16 (Defendants' Exhibit 24 was
17 marked for identification)
18 MR. SMITH: Q. I'm going to hand you a
19 copy of another article entitled Nicotine and
20 Addiction, which I have marked as Exhibit 24, and it's
21 an article by John Slade that also appeared in the
22 Journal of the American Medical Association.
23 You're familiar with that article?
24 A. I am.
25 Q. Would you agree that the Slade article,
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1 like the Hurt and Robertson article, reviews a number
2 of tobacco company documents?
3 A. Yes.
4 Q. Would it be fair to say that, like the Hurt
5 and Robertson article, the Slade article doesn't
6 change any of the opinions you reached after reviewing
7 the tobacco company documents yourself?
8 A. That's correct.
9 Q. Do you know what methodology the authors of

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10 the Slade article followed in selecting tobacco
11 company documents to include in their article?
12 A. I think they just tried to look at the ones
13 that were relevant to the addiction question.
14 They reviewed a very large number of
15 documents that were sent to Dr. Glantz, and these were
16 just the ones dealing with addiction.
17 Q. Do you know who sent the documents to
18 Dr. Glantz?
19 A. I think it's someone who -- I don't know
20 the name. Someone who worked in a law firm, but I
21 don't know the name.
22 Q. Do you know if there are any tobacco
23 company documents the authors of the Slade article saw
24 but chose not to discuss in their article?
25 A. I do not.
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1 Q. Do you know that the documents that were
2 reviewed in the Slade article were stolen from the
3 files of Brown & Williamson?
4 A. Do I know if they were stolen?
5 Q. Yeah.
6 A. I don't know for sure that they were
7 stolen. I know that they were sent by someone from
8 Brown & Williamson. I don't know the way that someone
9 got them.
10 Q. So you're of the opinion that somebody who
11 works for Brown & Williamson supplied Slade and Glantz
12 with the documents summarized in the Slade article?
13 MR. FLERLAGE: Objection.
14 THE WITNESS: Well, to Dr. Glantz.
15 I think Slade came in later to work with
16 Dr. Glantz on the analysis of documents, but the
17 documents were basically sent to Dr. Glantz and then
18 they were placed in the archives of UC San Francisco
19 where I work, and then ultimately on the Internet.
20 MR. SMITH: Q. And how did you come to
21 that knowledge?
22 A. I know Dr. Glantz very well.
23 He told me that a box of -- that boxes of
24 documents just landed on the desk one day, and he
25 looked at them and he took them right over to the
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1 library where they were kept secure.
2 Q. But did the box of documents say who they
3 were from?
4 A. He didn't tell me that.
5 Q. Do you know if you've seen all the tobacco
6 company documents cited in the Slade article?
7 A. Yes, I have.
8 Q. And the Slade article doesn't contain any
9 new scientific research conducted by the authors of
10 the article?
11 A. That's correct.
12 Q. And did any of your conclusions you reached
13 from your own review of the tobacco company documents
14 change after you read the Slade article?
15 A. No.
16 (Defendants' Exhibit 25 was

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17 marked for identification)
18 MR. SMITH: Q. I'm handing you a copy of
19 an article that's marked as Exhibit 25, which is
20 entitled Smoking and Nicotine Dependence in Young
21 Adults; Differences Between Blacks and Whites, by
22 Patricia Andreski, A-N-D-R-E-S-K-I, and Naomi Breslau,
23 B-R-E-S-L-A-U, published in Drug and Alcohol
24 Dependence. That's what's in front of you.
25 A. Yes.

1 Q. You see that the abstract states that a
2 greater proportion of whites than blacks tried
3 smoking, became regular smokers, and met criteria for
4 nicotine dependence?
5 A. Yes.
6 Q. Do you agree, based on your own knowledge,
7 that a greater proportion of whites than African
8 Americans have tried smoking?
9 A. It depends where you are in the country,
10 and when. Currently in the cities more white kids are
11 smoking than black kids. I don't think that's
12 necessarily true, say, in the rural south. So it very
13 much depends on where it's being studied.
14 Q. But as on a nationwide average, would you
15 agree that a greater proportion of whites than African
16 Americans have tried smoking?
17 A. Yes.
18 Q. Would you also agree that a greater
19 proportion of whites than African Americans become
20 regular smokers?
21 A. Currently, yes. Not... That hasn't been
22 historically true, but at the current... current kids,
23 I'd say the answer is yes.
24 Q. What do you base your knowledge of
25 historical trends in African American smoking on?

1 A. Well, if you look at the prevalence of
2 smoking, prevalence rates have actually been higher in
3 black men than white men; about the same for black
4 women and white women. So historically the smoking
5 rates have been higher. In recent years it's changed
6 so that smoking rates are starting to converge because
7 of fewer black kids becoming addicted, compared to
8 white kids.
9 Q. So today fewer African American children
10 are becoming addicted to smoking than white children?
11 A. Right.
12 Q. Would you agree that a greater proportion
13 of whites than African Americans meet the criteria for
14 nicotine dependence?
15 MR. STOLPER: Objection.
16 THE WITNESS: Again, it depends on the age.
17 If you're talking about young adults and
18 kids, probably yes. If you're talking about the whole
19 population, no. Actually, blacks are more dependent.
20 MR. SMITH: Q. What do you think about the
21 conclusion in the Andreski and Breslau article where
22 it states that fewer African Americans meet the
23 criteria for nicotine dependence than whites?

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24 MR. FLERLAGE: Objection.
25 THE WITNESS: Let's talk about a young
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1 group. Let's talk about people 21 to 30 years old.
2 But if you look at people older than that,
3 you'll find that actually blacks tend to be more
4 dependent than whites.
5 MR. SMITH: Q. But in the age group of 21
6 to 30-year-olds, you would agree that fewer African
7 Americans proportionally meet the criteria of nicotine
8 dependence than whites?
9 A. Yes.
10 Q. The abstract also states, "Whites had their
11 first cigarette, began smoking regularly and
12 manifested symptoms of nicotine dependence at a
13 younger age than blacks." Do you see that?
14 A. Yes.
15 MR. FLERLAGE: Objection.
16 THE WITNESS: Yes.
17 MR. SMITH: Q. Would you agree, based on
18 your knowledge, that typically whites have their first
19 cigarette at an earlier age than African Americans?
20 A. For urban populations, yes.
21 Q. Would you agree that whites begin smoking
22 regularly at an earlier age than African Americans?
23 A. For an urban population, yes.
24 Q. Would your answers be the same for
25 nationwide averages?
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1 A. Yes.
2 Q. If you turn to page 122, the last sentence
3 in the first column states, "On the average, white
4 smokers smoked twice as many cigarettes daily than
5 black smokers." Do you see that?
6 MR. FLERLAGE: Objection.
7 THE WITNESS: Yes.
8 MR. SMITH: Q. Based on your knowledge, do
9 you agree that whites, on average, smoke twice as many
10 cigarettes a day as African American smokers?
11 MR. STOLPER: Objection.
12 THE WITNESS: No. They smoke more, but not
13 twice as many for the whole population.
14 MR. SMITH: Q. Do you -- what figure would
15 you use?
16 MR. STOLPER: Is there a time period there?
17 THE WITNESS: Pardon?
18 MR. STOLPER: I'm trying to clarify the
19 question. Can I have the question read back.
20 (The record was read by the reporter)
21 THE WITNESS: I would say maybe 20 percent
22 more.
23 MR. SMITH: Q. So based on your knowledge,
24 you would say that whites smoke twice as many
25 cigarettes per day as African American smokers?
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1 A. Yes.
2 Q. The article goes on to state, "White

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3 smokers were also more likely than black smokers to be
4 heavy smokers, defined as smoking 20 or more
5 cigarettes daily, with 67 percent of white smokers
6 versus 20 percent of black smokers classified as heavy
7 smokers." Do you see that?
8 MR. FLERLAGE: Objection.
9 THE WITNESS: Yes.
10 MR. SMITH: Q. Would you agree that white
11 smokers are more likely to be heavy smokers than
12 African Americans?
13 A. Yes.
14 (Defendants' Exhibit 26 was
15 marked for identification)
16 MR. SMITH: Q. I'm handing you a copy of
17 another article that's been marked as Exhibit 26,
18 which is entitled Nicotine Metabolism and Intake in
19 Black and White Smokers, published in the Journal of
20 the American Medical Association in 1998.
21 A. Yes.
22 Q. That's what's in front of you.
23 A. Yes.
24 MR. FLERLAGE: Can I take a look at that?
25 MR. SMITH: Q. Is that a document you rely
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1 on for your testimony in the National Asbestos Workers
2 case?
3 A. Yes.
4 Q. On page 152 you state, in the first and
5 second columns that, "Black men have a higher
6 incidence of and mortality from lung cancer than do
7 white men, while rates among women are similar in
8 these two racial groups." Do you see that?
9 A. Yes.
10 Q. Based on your knowledge, the incidence of
11 and mortality from lung cancer in African American
12 women is similar to that found in white women?
13 A. Yes.
14 Q. You next state, "Differences in smoking
15 rates and socioeconomic status between blacks and
16 whites explain most of the observed differences in
17 lung cancer incidence and mortality among men."
18 Do you see that?
19 A. Yes.
20 Q. Based on your knowledge, do you agree that
21 the differences in smoking rates and socioeconomic
22 status between African Americans and whites explains
23 most of the observed differences in lung cancer
24 incidence and mortality among black and white men?
25 A. Yes.
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1 Q. You agree that socioeconomic status is an
2 important factor in determining the risk of getting
3 lung cancer?
4 A. Yes, it can be.
5 Q. You next state, "However, available
6 evidence indicates that blacks have a lower risk of
7 developing and dying from COPD compared with whites,
8 and this discrepancy in racial differences in
9 smoking-related diseases is unexplained."

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10 A. Yes, yes.
11 Q. And what is COPD, just for the record?
12 A. Chronic obstructive pulmonary disease.
13 Q. Would you agree, based on your knowledge,
14 that African American smokers have a lower risk of
15 getting chronic obstructive pulmonary disease?
16 A. Yes.
17 Q. Would you agree that scientists do not know
18 why African American smokers are at lower risk for
19 getting chronic obstructive pulmonary disease?
20 A. Yes.
21 Q. Would you agree that scientists do not know
22 why African American smokers are at a higher risk of
23 getting lung cancer?
24 A. Well, there's some theories, including my
25 own.
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1 Q. But as of this date today, there's no
2 consensus on why African American smokers are at
3 higher risk of getting lung cancer?
4 A. There are explanations. It's hard to prove
5 it, but there are some logical explanations, including
6 the one proposed in this article, which is basically
7 that blacks -- if you say the risk of lung cancer that
8 is normalized for cigarette consumption is higher in
9 blacks than whites, which is what has been reported,
10 we found that blacks took in 15 percent more smoke per
11 cigarette than whites, so that could explain some of
12 the differences in risk.
13 Q. But there may be other explanations for the
14 difference in risk, right?
15 A. Well, but it's logical, since we know
16 there's a dose response for lung cancer and exposure
17 to cigarette smoke, if you take in more smoke per
18 cigarette you'll be expected to have a higher lung
19 cancer risk.
20 Q. I'll move to strike as nonresponsive.
21 Would you agree that there are other
22 possible explanations for differences in lung cancer
23 risks among whites and African Americans?
24 MR. FLERLAGE: Objection.
25 THE WITNESS: Well, other things could be
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1 operative as well, but I think this is one explanation
2 that is almost certainly to be part of the story.
3 MR. SMITH: Q. In the next paragraph you
4 state, "However, sex differences persist as black men
5 continue to smoke at higher rates than white men,
6 while black women smoke at lower rates than white
7 women." Do you see that?
8 A. Yes.
9 Q. Would you agree, based on your knowledge,
10 that African American males smoke at higher rates than
11 white males?
12 A. Yes.
13 Q. Would you agree that African American
14 females smoke at lower rates than white females?
15 A. Yes.
16 Q. On page 155, at the bottom of the first

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17 paragraph in the first column, you state, "However,
18 the lower rate of COPD among blacks is an unexplained
19 paradox that may be related to other biological or
20 environmental factors." Do you see that?
21 A. Yes.
22 Q. Is it fair to say that the lower rate of
23 COPD in African Americans is a paradox that is
24 inconsistent with your theory that African Americans
25 inhale more smoke from the cigarette than white
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1 smokers, and are therefore at greater risk of getting
2 lung cancer?
3 MR. FLERLAGE: Objection.
4 THE WITNESS: Well, it certainly -- it goes
5 the opposite direction, and I can't explain.
6 It does go the opposite direction of what I
7 said about lung cancer risk.
8 MR. SMITH: Q. So differences in -- strike
9 that. Your theory that you present in the JAMA
10 article does not explain the differences in COPD risk
11 among whites and African Americans?
12 A. That's correct.
13 Q. In the first sentence of the second full
14 paragraph you state, "The reasons why blacks take in
15 more nicotine and more cigarette smoke per cigarette
16 are unclear." Do you see that?
17 A. That's correct.
18 Q. Do you agree that the reasons that African
19 Americans take in more nicotine and more cigarette
20 smoke per cigarette are unclear?
21 A. Yes.
22 Q. You go on to state, "The most obvious
23 possibility is that menthol via its cooling action
24 facilitates deep inhalation. However, studies
25 measuring puffing behavior and puff volumes after
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1 persons have smoked individual mentholated versus
2 nonmentholated cigarettes have not supported this
3 explanation." Do you see that?
4 A. Yes.
5 Q. Do you agree that studies have shown that
6 menthol does not facilitate deep inhalation of
7 cigarette smoke?
8 A. Well, so far. There are other studies
9 and -- several studies and there are others ongoing,
10 but to date I would agree with you.
11 Q. Which ongoing studies do you know of on
12 that question of menthol and the inhalation of
13 cigarette smoke?
14 A. I think there are studies that
15 Dr. Ahleyvich is doing -- I don't know if she's from
16 Detroit or someplace, but she's doing a bunch of
17 studies looking at black/white differences.
18 The American Health Foundation in Valhalla,
19 New York, is looking at it, these two groups.
20 Q. Do you know if there's a dose response
21 relationship between smoke intake and risk of COPD?
22 A. In general, yes.
23 Q. I think in your article, in the second full

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24 paragraph in the second column, you state, "Systematic
25 differences in reporting number of cigarettes per day
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1 could theoretically explain the difference in
2 estimating nicotine intake per cigarette by race,"
3 right?
4 A. Yes.
5 Q. Do you agree that systematic differences in
6 reporting number of cigarettes per day could
7 theoretically explain the differences in estimating
8 nicotine intake per cigarette by race?
9 A. Well, that's a theoretical.
10 We then go on in that paragraph to cite two
11 studies which did not find such a bias.
12 (Defendants' Exhibit 27 was
13 marked for identification)
14 MR. SMITH: Q. I'd like to hand you a copy
15 of another exhibit marked 27, which is an article
16 entitled Racial and Ethnic Differences in Serum
17 Cotinine Levels of Cigarette Smokers, which was
18 published in JAMA in 1998.
19 Is that an article that you rely on in your
20 testimony in the National Asbestos Workers case?
21 A. Yes.
22 Q. On the last page, in the second paragraph
23 in the first column the article states, "Our results
24 documenting differences between the serum cotinine
25 levels of black and white smokers are consistent with
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1 results documenting differences in serum cotinine
2 levels between black nonsmokers and white nonsmokers."
3 Do you see that?
4 A. Yes.
5 Q. And based on your knowledge, do you think
6 that there are differences in serum cotinine levels
7 between African American nonsmokers and white
8 nonsmokers?
9 A. Yes.
10 Q. In the last paragraph in the first column
11 the article states, "Further research is needed to
12 clarify the relationship between smoking practices and
13 serum cotinine levels in ethnic groups in the United
14 States." Do you see that?
15 A. Yes.
16 Q. Would you agree, based on your knowledge
17 today, that further research is needed to clarify the
18 relationship between smoking practices and serum
19 cotinine levels in ethnic groups in the United States?
20 A. Yes, I would say so.
21 Q. Would you agree that no further research is
22 needed to clarify the relationship between smoking
23 practices and differences in nicotine metabolism in
24 ethnic groups in the United States?
25 A. I don't know about that.
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1 We've done a lot of that work and published
2 a bunch of it, and still that work is ongoing. I

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3 think that part of it is almost worked out.
4 Q. But you're doing ongoing research on the
5 issue of nicotine metabolism and the differences in
6 various ethnic groups?
7 A. Yes.
8 Q. And I take it there are still some
9 unanswered questions you have about the differences in
10 nicotine metabolism in various ethnic groups?
11 A. The main question I'm looking at now is the
12 genetic factors, what genes are controlling
13 metabolism, but I think it's clear that there are
14 ethnic differences, and we're just trying to figure
15 out which genes are explaining it.
16 Q. And that's not anything that you've
17 published yet, is that correct?
18 A. That's correct.
19 Q. Do you anticipate publishing that in the
20 near future?
21 A. Not before this trial.
22 Q. At the top of the second column the JAMA
23 article states, "Whether higher serum cotinine
24 concentrations contribute to higher rates of nicotine
25 addiction among blacks than whites is unknown."
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1 Do you see that?
2 A. Yes.
3 Q. Based on your knowledge, do you agree that
4 it is unknown whether higher serum cotinine
5 concentrations contribute to higher rates of nicotine
6 addiction among African Americans than white?
7 A. Yes.
8 Q. Would you agree that there's a wide
9 variability among white smokers in the amount of
10 tobacco smoke they inhale per cigarette?
11 A. Yes.
12 Q. Would you agree that there's a wide
13 variability among African American smokers in the
14 amount of tobacco smoke they inhale per cigarette?
15 A. Yes.
16 Q. Would you agree there's a wide variability
17 in the amount of serum cotinine concentration in the
18 blood of individual smokers?
19 A. Per cigarette?
20 Q. Sure.
21 A. Yes.
22 Q. Are you aware of any research by tobacco
23 company scientists on the topics you've cited on
24 whether African American smokers inhale more tobacco
25 smoke per cigarette than white smokers?
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1 A. No, I don't think so.
2 (Defendants' Exhibit 28 was
3 marked for identification)
4 MR. SMITH: Q. I'm going to hand you a
5 copy of another article that's marked Exhibit 28,
6 which is a copy of a study by Jed Rose that I think
7 you've seen before, entitled Arterial Nicotine
8 Kinetics During Cigarette Smoking and Intravenous
9 Nicotine Administration: Implications for Addiction,

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10 which was published in 1999.
11 A. Yes.
12 Q. That's what's in front of you.
13 A. Yes.
14 Q. And you've seen the 1999 Rose article
15 before?
16 A. Yes.
17 Q. In your opinion, is the Rose study a valid
18 scientific study?
19 MR. FLERLAGE: Objection.
20 THE WITNESS: Yes. There's some questions
21 about generalizability to smoking, but I think insofar
22 as it goes, it seems to be done well and valid.
23 MR. SMITH: Q. And obviously the journal
24 it was published in, Drug and Alcohol Dependence, is a
25 respected peer review publication, right?
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1 A. Yes.
2 Q. In your opinion, are the data in the Rose
3 study valid scientific data?
4 A. Yes. My problem with this study is really
5 generalizability.
6 Q. Have you had any communications with
7 Dr. Henningfield about the 1999 Rose article?
8 A. Yes. We have e-mailed to each other and
9 with Jed Rose about it.
10 Q. Do you have copies of the e-mails you sent
11 to Henningfield and Rose, or received?
12 A. No. I would not have kept them.
13 Q. And you don't think they were on your
14 computer system at work?
15 A. They're not on my personal computer.
16 Whether they're on some other computer, I
17 have no idea.
18 Q. Have you discussed the Rose article with
19 plaintiffs' attorneys in the National Asbestos Workers
20 case?
21 MR. FLERLAGE: Objection.
22 THE WITNESS: Briefly.
23 MR. SMITH: Q. When was that?
24 A. Last night.
25 Q. What did they say about it?
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1 MR. FLERLAGE: Objection.
2 Don't answer that.
3 MR. SMITH: On what grounds, just for the
4 record?
5 MR. FLERLAGE: Because it's privileged.
6 MR. McDONNELL: I'm sorry.
7 You're asserting the privilege with respect
8 to an expert witness?
9 MR. FLERLAGE: Yeah, because of
10 communications I had with him last night.
11 It affects my clients.
12 MR. SMITH: Q. In the abstract of the Rose
13 article you see that it describes the experiments,
14 stating, "We measured arterial plasma nicotine
15 concentrations in samples collected every five seconds
16 from 13 cigarette smokers during cigarette smoking and

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17 during administration of nicotine by intravenous
18 injections." Do you see that?
19 MR. FLERLAGE: Objection.
20 THE WITNESS: Yes.
21 MR. SMITH: Q. In the 1999 Rose study the
22 researchers measured nicotine in the blood flowing
23 through smokers' arteries to see how quickly nicotine
24 entered the bloodstream, is that correct?
25 A. Yes.
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1 Q. The 1999 Rose study was the first such
2 study to measure nicotine concentrations in blood
3 samples collected at such short intervals, every five
4 seconds, is that correct?
5 A. As far as I know, yes.
6 Q. The next sentence of the Rose study states,
7 "Our results show that, for both routes of
8 administration, concentrations of nicotine in arterial
9 blood were more than ten times lower than expected."
10 Do you see that?
11 A. Yes.
12 Q. The Rose study found that the concentration
13 of nicotine in the blood of smokers was much lower
14 than had been found in previous studies, is that
15 correct?
16 A. Yes, and that gets back to the
17 generalizability issue.
18 Q. The next sentence of the Rose study states,
19 "Thus, the delivery of nicotine into arterial blood is
20 substantially slower than would be predicted if
21 nicotine were absorbed as rapidly as has generally
22 been assumed." Do you see that?
23 MR. FLERLAGE: Objection.
24 THE WITNESS: Well, yeah. That really is a
25 statement based on his modeling predictions, and with
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1 respect to what he tried to predict, I'd say that
2 statement is correct.
3 MR. SMITH: Q. Would you agree that
4 scientists have assumed that nicotine in cigarette
5 smoke is absorbed very rapidly by smokers?
6 A. Well, it is absorbed very rapidly.
7 Even his data indicates it's rapid. The
8 question is whether it all gets there in ten seconds
9 or whether it takes -- he shows that the absorption
10 peak can take as long as 30 seconds after a single
11 puff. I had thought, and most other scientists
12 thought, that you would see the absorption in people
13 in ten seconds.
14 Q. So right now there's some studies that show
15 the nicotine peak in a smoker's blood comes within ten
16 seconds, whereas other studies, such as the Rose
17 studies, show that it comes within 30 second?
18 MR. FLERLAGE: Objection.
19 THE WITNESS: Right, right. But this is
20 still fast, still rapid. Even 30 seconds, compared to
21 other delivery systems, is quite rapid. And with
22 respect to why people smoke cigarettes, I don't think
23 it matters if it's ten seconds or 30 seconds.

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24 The fact is, a person who smokes a
25 cigarette gets an effect in a pretty short time.
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1 MR. SMITH: Move to strike as
2 nonresponsive.
3 Q. If you'll look at the next sentence of the
4 Rose study it states, "A plausible explanation of
5 these results is that lung uptake of nicotine
6 considerably slows the entry of nicotine into the
7 systemic circulation, as has been shown for other
8 amines." Do you see that?
9 A. Yes.
10 Q. The researchers in the 1999 Rose study
11 believed that lung uptake of nicotine substantially
12 slows the entry of nicotine into the systemic
13 circulation?
14 MR. FLERLAGE: Objection.
15 THE WITNESS: Yes.
16 MR. SMITH: Q. Would you agree that
17 studies conducted on compounds such as amines related
18 to nicotine indicated that absorption through the
19 lungs is relatively slow?
20 A. Not exactly relatively slow. It is slowed.
21 Instead of being instantaneously absorbed,
22 it's delayed a little bit, but it's still rapid.
23 Q. Do you know -- can you cite any of the
24 studies on amines that have been done?
25 A. There's some studies on lidocaine, which is
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1 a drug that I've studied, which have been looked at.
2 There's some studies on propranolol, which
3 is a drug that is used for hypertension and heart
4 disease. There are a number of studies done that look
5 at lung uptake.
6 Q. Would you agree that the researchers in the
7 1999 Rose study also found arterial blood nicotine
8 concentrations that were ten times smaller than those
9 found in prior studies?
10 MR. FLERLAGE: Objection.
11 THE WITNESS: It wasn't done in the same
12 way to compare it. They certainly found a lower than
13 predicted by the model, but they really didn't compare
14 it to the same approaches and the same smoking
15 paradigms that, for example, we used in our study, or
16 Jack Henningfield used in his study.
17 MR. SMITH: Q. So if I understand you
18 correctly, if you use different methodologies, you can
19 get different results from the concentrations of
20 nicotine in the blood due to smoking?
21 A. No. Jed Rose didn't look at cigarettes, he
22 looked at individual puffs from a smoking system that
23 was sort of a glass syringe. We looked at people
24 smoking cigarettes. We looked at arterial levels
25 after smoking a cigarette.
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1 The study we did in San Francisco was the
2 Gourlay study. With the Jack Henningfield study, we

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3 worked with him on design and we measured the levels.
4 Both those studies were cigarette smoking studies.
5 This was someone taking three puffs from a
6 smoke-filled syringe. I think that our data are more
7 relevant to what people take in from smoking.
8 Q. Do you have any documentation concerning
9 the prior studies you've conducted on how fast
10 nicotine gets into the blood of smokers?
11 A. Well, we don't know how fast, but I'm
12 talking about the peak level.
13 That's what you asked me about.
14 Q. Do you have any documentation on those
15 studies that you did?
16 A. They're published.
17 Q. But do you have any unpublished documents
18 or other materials relating to your studies on peak
19 nicotine levels in the blood of smokers?
20 MR. FLERLAGE: That's -- beyond what's
21 published?
22 MR. SMITH: Yeah, beyond what's published.
23 MR. FLERLAGE: Objection.
24 THE WITNESS: That's all published.
25 MR. SMITH: Q. Yeah, but do you have any
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1 documents on it? I know that it resulted in some
2 published studies, but I'm wondering if you have any
3 lab notebooks, data sheets, or documents relating to
4 your research on peak nicotine levels.
5 MR. FLERLAGE: Objection.
6 THE WITNESS: We probably have the data
7 sheets that were the basis for the paper.
8 MR. SMITH: Q. Would you mind providing
9 those materials to us?
10 MR. FLERLAGE: Objection. I think you
11 ought to make that request in writing and state a
12 reason why you think you need it so that we can argue
13 this out with the Court, because I don't want
14 underlying data turned over willy-nilly. Some of it
15 is privileged, some of it is hospital data, some of it
16 is personal data to individuals, and some of it is
17 absolutely not discoverable -- most of it probably
18 isn't. So I'd request that in writing from you.
19 MR. SMITH: Q. Isn't it a fact that the
20 data you collected, you published some of that data in
21 open scientific journals, right?
22 A. Yes.
23 Q. And you didn't have any concerns about
24 publishing your data in -- that you collected in
25 published scientific journals?
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1 A. Well, we certainly don't include any
2 individual identifiers, things like that.
3 That's something which is not published.
4 Q. But other than that, do you publish a lot
5 of your data that you collect from the studies?
6 A. We publish all of it.
7 Q. And do you personally know of any objection
8 you would have to disclosing your data that you
9 collected on this issue?

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10 MR. FLERLAGE: Objection.
11 THE WITNESS: Well, I just... I'd like to
12 know what's going to happen to the data.
13 MR. FLERLAGE: Well, what's going to happen
14 to it is you're going to turn it over to the
15 defendants and they'll do whatever they want with it.
16 It's out of your control.
17 THE WITNESS: I would rather not give it to
18 you, if I'm not forced to.
19 MR. FLERLAGE: And I'll renew my request
20 that you make it in writing, if you do make a request
21 for any underlying data which is not otherwise
22 published.
23 MR. SMITH: Q. If you would turn to page
24 102, under the heading Discussion, you see that the
25 Rose researchers found nicotine concentrations of
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1 seven nanograms per milliliter, is that correct?
2 MR. FLERLAGE: Objection.
3 THE WITNESS: Where are you reading?
4 MR. SMITH: Q. It's on page 102, under the
5 heading Discussion. Do you see that it states there
6 that the researchers in the Rose study found nicotine
7 concentrations in the blood of smokers of seven
8 nanograms per milliliter?
9 MR. FLERLAGE: Objection.
10 THE WITNESS: Yes.
11 MR. SMITH: Q. The data collected by the
12 Rose study found nicotine concentrations of seven
13 nanograms per milliliter in arterial blood after
14 smoking?
15 MR. FLERLAGE: Objection.
16 THE WITNESS: After smoking in the way that
17 they had people smoking cigarettes, which is not
18 actually smoking a cigarette, they're smoking smoke
19 from a syringe. In their system, that's what they
20 found. And this was three puffs, it wasn't smoking
21 the whole cigarette. It was three puffs from a
22 syringe full of smoke.
23 MR. SMITH: Q. What are your complaints
24 about their using a syringe rather than cigarettes?
25 A. People -- the amount of smoke that a person
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1 takes in is based generally on their sensations from
2 smoking their cigarette. When you smoke from a device
3 that is totally foreign, you may not smoke at all like
4 you would normally smoke a cigarette.
5 You might take in much less smoke.
6 Q. You might also take in much more smoke,
7 right, if you smoke from a syringe rather than a
8 cigarette?
9 A. You can't tell. But the fact is that we
10 studied cigarettes that people actually smoked; their
11 cigarettes, smoking it the way they smoked them, and
12 therefore we know that's the way they normally take it
13 in. Jed Rose's work is unknown. It could be more, it
14 could be less, but it's an unknown.
15 Q. Have you discussed any potential
16 methodological flaws in your research that you did

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17 with Dr. Rose, when you were talking about the Rose
18 article?
19 MR. FLERLAGE: Objection.
20 THE WITNESS: Yes, yes. I just raised the
21 whole -- the question of generalizability, whether you
22 can extrapolate puffing cigarette smoke from a
23 syringe, to someone smoking a cigarette. That was my
24 big concern about the study in the beginning.
25 MR. SMITH: Q. Do you think any of your
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1 research, though, is subject to any methodological
2 limits?
3 MR. FLERLAGE: Objection.
4 THE WITNESS: You could always find some
5 concern with all studies, but the concept of
6 generalizability means how close to a realistic
7 situation is your study paradigm. This study paradigm
8 is not at all close to natural cigarette smoke. Ours
9 was much closer. We're still in the laboratory, but
10 it was much closer to a person's normal smoking
11 behavior than this is. This is just three puffs.
12 We had a person smoke a whole cigarette.
13 MR. SMITH: Q. What does Dr. Rose think
14 about your criticisms of his study?
15 MR. FLERLAGE: Objection. Ask Dr. Rose.
16 MR. SMITH: Q. Well, you've talked to
17 Dr. Rose about his study, right?
18 A. Yeah.
19 MR. FLERLAGE: Objection.
20 THE WITNESS: I don't recall, but I don't
21 think he would argue that smoking three puffs from a
22 syringe is the same thing as smoking an entire
23 cigarette of your own cigarette. I mean, it's
24 different. What his study does do is give information
25 on detailed rate of absorption, which my study did
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1 not, and that's what his contribution is.
2 MR. SMITH: Q. I see. So your prior work
3 was only looking at the amount of nicotine that got
4 into the blood of smokers, and not the rate at which
5 nicotine got into the blood of smokers?
6 A. It was cruder. We looked at somebody
7 smoking a cigarette and got a blood sample at three
8 minutes, six minutes, and at the end of smoking.
9 He sampled every five seconds for three
10 puffs. So he has a much more fine-grained picture.
11 We just show that at ten minutes you get a
12 peak level. We couldn't say at each puff does it take
13 ten seconds or 20 seconds or 30 seconds.
14 His study could do that, so his
15 contribution is the fine-grained time course of
16 nicotine appearance in the bloodstream after each
17 puff.
18 Q. So if I understand you, you believe that
19 the contribution of the Rose study is that it shows
20 the time course of how nicotine enters the bloodstream
21 with each puff?
22 A. Correct.
23 Q. And that wasn't something that was done

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24 with prior studies?
25 A. Correct.
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1 Q. By the way, going back to the disclosure of
2 your data and lab notebooks, obviously you would hold
3 the position that there are legitimate reasons that
4 you wouldn't want to disclose all of the information
5 you've collected in your research?
6 A. Yes.
7 Q. And that would hold for a company also?
8 There could be reasons that a company would
9 not want to disclose scientific research, if they're
10 legitimate?
11 A. Sure, but anything that I think is of
12 generalizable knowledge value, I'll try to publish.
13 Q. And you've worked with -- you've worked
14 with a number of pharmaceutical companies, right?
15 Is that correct?
16 A. Yes.
17 Q. And do you think that they have published
18 all of the research that they've collected?
19 MR. FLERLAGE: Objection.
20 THE WITNESS: Well, I don't know if they
21 do, but certainly whenever I work with them, there's a
22 contract that's written that says that if we find
23 something that we want to publish, we're allowed to
24 publish it.
25 MR. SMITH: Q. But there are legitimate
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1 reasons why a company might not want to disclose to
2 the world all of its research that it's doing
3 internally?
4 MR. FLERLAGE: Objection.
5 Asked and answered.
6 THE WITNESS: Usually it's when a product
7 is not patented yet or when there's a patent dispute,
8 that's one time. And sometimes it's not published
9 just because the... there are a lot of pressures for
10 product development so the employees don't have the
11 time to do it.
12 MR. SMITH: Q. Would you agree that data
13 in the 1999 Rose study indicate that there are no
14 large spikes in nicotine delivered into a smoker's
15 blood?
16 MR. FLERLAGE: Objection.
17 THE WITNESS: No, it does not show that at
18 all. There's a spike after every puff.
19 MR. SMITH: Q. If you turn to Figure 3 --
20 maybe I'm misreading that. If you look at Figure 3,
21 doesn't it indicate that there's really no large spike
22 in the nicotine delivered in a smoker's blood?
23 A. Well, there's not a spike that goes up to a
24 hundred nanograms per mil, as their model predicted
25 they might. These levels of nicotine, like I said,
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1 are much lower than what we found before, but if you
2 look at the Gourlay paper or the Henningfield paper

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3 and you look at comparing time zero to ten minutes,
4 which is the end of smoking a cigarette, there's a
5 spike. There's a big rise in nicotine levels.
6 Q. By the end of ten minutes?
7 A. Yes.
8 Q. But in the Rose study, in the data pictured
9 in Figure 3, for the first 160 seconds after smoking
10 the cigarette there's no spike?
11 MR. FLERLAGE: Objection.
12 THE WITNESS: First of all, this is not
13 smoking a cigarette, it's taking three puffs from a
14 syringe, it's taking them at 60 second intervals.
15 It's not the way people smoke cigarettes.
16 It cannot be extrapolated from smoking a
17 cigarette. This is a different situation.
18 MR. SMITH: Q. Do you know if anybody is
19 going to do any follow-up research on the data found
20 in the Rose study?
21 A. I don't know if Jed Rose is planning to do
22 more or not.
23 Q. Are you planning to do any research to
24 clarify any discrepancies you perceive between prior
25 work and the Rose study?
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1 MR. FLERLAGE: Objection.
2 THE WITNESS: I don't think it's really
3 necessary. I think that the data we have are
4 sufficient to understand what happens.
5 I would do it if I had cigarettes of
6 different pHs like we talked about before, because
7 that's a different issue. I'd do something like this.
8 But with the current cigarettes, we know enough about
9 absorption being pretty rapid. If it's ten seconds or
10 30 seconds, it doesn't really matter, in terms of the
11 reinforcement that people get from it.
12 MR. SMITH: Q. Well, have you measured the
13 reinforcement in a smoker that occurs after ten
14 seconds or 30 seconds?
15 A. No. But I'm saying that people take a puff
16 of a cigarette and in a short period of time they feel
17 the effects of that cigarette, and that's the critical
18 behavioral reinforcement part of it. It doesn't
19 really matter if it's ten seconds or 30 seconds.
20 Q. How have you measured whether the smoker
21 feels the effects of the cigarette?
22 A. We've had questionnaires. We ask people
23 about how they feel. You can ask a smoker, after they
24 have a puff of a cigarette, do they feel the effect
25 and when, and they can tell you that.
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1 Q. And it's up to the smoker to tell you when
2 they feel the effects of the cigarette?
3 A. Yes.
4 Q. Have any of your opinions changed since you
5 testified against the asbestos companies in the Jones
6 and Childress cases?
7 A. No, they haven't changed. I think there's
8 more scientific data available to sort of amplify the
9 mechanisms of nicotine addiction -- hormonal changes

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10 and things like that -- but basically my testimony in
11 those cases was just like a short version of what I'll
12 do in this case, just explain to the jury what
13 nicotine addiction means.
14 Q. You've testified on behalf of plaintiffs
15 suing asbestos companies for damages resulting from
16 exposure to asbestos?
17 A. Right.
18 Q. You've been testifying on behalf of those
19 plaintiffs during the same period in which you were
20 testifying against the tobacco companies?
21 A. Yes.
22 Q. Do you know if Johns-Manville was one of
23 the defendants in any of the cases in which you
24 testified?
25 MR. FLERLAGE: Objection.
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1 You mean the trust or the company?
2 MR. SMITH: The company.
3 THE WITNESS: You know, I don't know.
4 My concern with those cases wasn't really
5 the asbestos issue at all. I only testified about the
6 smoking part, so I don't really know who the
7 defendants were in those cases.
8 MR. SMITH: Q. So sitting here today you
9 can't really tell me who the defendants were in the
10 cases in which you testified?
11 A. The only one I know was Raybestos, because
12 that was always named first.
13 So it was Raybestos, et al.
14 Q. Has anybody ever approached you to testify
15 in any case against Johns-Manville or the
16 Johns-Manville Trust?
17 A. Not that I recall specifically.
18 Q. Am I correct that the first time you
19 testified against an asbestos company was in 1991 in
20 the Richie vs. Raybestos Manhattan case?
21 A. I think so.
22 Q. In your testimony against the asbestos
23 companies you testified that the asbestos companies
24 were liable for asbestos-related diseases suffered by
25 smokers who were exposed to asbestos?
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1 MR. FLERLAGE: Objection.
2 MR. STOLPER: Objection.
3 THE WITNESS: That wasn't my testimony.
4 My testimony was related to talk about
5 tobacco, really to talk about tobacco addiction.
6 There were other experts that were talking
7 about the asbestos contribution.
8 MR. SMITH: Q. But the plaintiffs in the
9 cases in which you testified were suing the asbestos
10 companies for damages they received as a result of
11 being exposed to asbestos, right?
12 A. Yes.
13 Q. And many of those people that you testified
14 on behalf of were smokers, right?
15 A. Yes.
16 Q. Did the asbestos companies try to argue

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17 that smoking was the real cause of the diseases, in
18 the cases in which you testified?
19 MR. FLERLAGE: Objection. If you know.
20 THE WITNESS: I don't know because, again,
21 that wasn't what I was asked. My role was just to go
22 in and explain to the jury what nicotine addiction was
23 about, so I don't know what the other arguments were.
24 I assume it's the argument that you're saying, but I
25 was not party to hearing those arguments.

1 MR. SMITH: Q. Now do you know whether the
2 synergistic effects between asbestos and smoking were
3 an issue raised in the cases in which you testified?
4 A. Probably. They are in most cases.
5 Q. And the lawyers for the asbestos companies
6 are aware that the synergistic effects of smoking and
7 asbestos exposure were an important issue in those
8 cases?
9 MR. FLERLAGE: Objection.
10 MR. STOLPER: Objection.
11 THE WITNESS: Again, I presume so, but I
12 don't know for sure.
13 MR. SMITH: Q. Isn't it true that you were
14 asked some questions about synergistic effects in some
15 of your deposition or trial testimony in those
16 asbestos cases?
17 A. I was asked if I believed that they're
18 synergistic and I said yes, I do believe that.
19 Q. And you were asked those questions by
20 lawyers for the asbestos companies, right?
21 A. I don't recall.
22 Q. In your prior testimony in asbestos cases
23 you testified about the addictive properties of
24 nicotine and their effects in asbestos exposed
25 smokers, is that right?

1 MR. FLERLAGE: Could I have that read back
2 again.
3 (The record was read by the reporter)
4 THE WITNESS: The effects of nicotine?
5 MR. SMITH: Q. Yes.
6 A. Yes.
7 Q. In how many cases have you acted as a
8 witness for plaintiffs suing asbestos companies?
9 A. Well, I think there have been maybe three
10 or four trials, and maybe another two or three
11 depositions that didn't go the trial. I'm not sure.
12 It's been over many years. But I would say
13 either three or four trials.
14 Q. Do you have any transcripts of the
15 deposition or trial testimony you have given in those
16 cases?
17 A. I don't believe so.
18 Q. Did the plaintiffs' lawyers in the National
19 Asbestos Workers ever discuss with you whether you had
20 transcripts from those cases?
21 A. Yes, they asked me, and I told them that
22 all of these cases were for the Wartnick Chaber law
23 firm and that they would probably have copies of them,

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24 so I referred them to them.
25 Q. Do you know whether those cases were all in
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1 state court or were they in federal court?
2 A. I don't know.
3 I think they're all in state court.
4 Q. Can you name the cases, all of the cases
5 that you testified in which were asbestos cases?
6 A. You named Richie. I remember that.
7 Some of them were groups like Wartnick
8 Group, something group number, but I don't -- I don't
9 recall offhand. I think I gave you a list of
10 depositions, and they would have been in there.
11 Q. Yeah. Your list of depositions, I think
12 was somewhat incomplete for National Asbestos Workers,
13 but at any rate, it started in 1995. That's the only
14 reason I was asking you about that.
15 I don't want to take up any extra time.
16 You've written a number of articles on occupational
17 disease, including asbestos-related disease.
18 A. With respect to smoking, yes.
19 Q. And you know that asbestos causes a number
20 of diseases?
21 A. Yes.
22 Q. You know that asbestos causes asbestosis?
23 A. Yes.
24 Q. You know that asbestos can cause lung
25 cancer?
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1 A. Yes.
2 Q. You know that asbestos causes pleural
3 plaques?
4 A. Yes.
5 Q. You know that in 1968 Irving Selikoff,
6 S-E-L-I-K-O-F-F, published an important article
7 showing that asbestos exposure and cigarette smoking
8 had synergistic effects, in terms of causing disease?
9 A. Yes.
10 Q. The 1968 Selikoff study indicated that
11 smoking and asbestos exposure had multiplicative
12 effects, in terms of the risk of getting
13 asbestos-related disease?
14 A. Yes.
15 Q. Are you aware that Selikoff collected data
16 from members of the National Asbestos Workers union
17 for his 1968 study?
18 A. No.
19 Q. Do you agree that some of the scientific
20 studies that have been conducted have not shown any
21 multiplicative effects of cigarette smoking and
22 asbestos exposure?
23 MR. FLERLAGE: Objection.
24 THE WITNESS: There have been studies with
25 different results, yes.
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1 MR. SMITH: Q. Have you seen any internal
2 tobacco company documents relating to asbestos?

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3 A. No.
4 Q. You can't point to any internal tobacco
5 company research on the health effects of asbestos and
6 tobacco that is different from what was publicly
7 known?
8 A. No. I don't know one way or the other.
9 Q. Would you agree that asbestos-related
10 disease is one category of occupational disease?
11 A. Yes.
12 Q. Occupational disease is disease that is
13 associated with exposure in the workplace?
14 A. Yes.
15 Q. You're aware that the Occupational Safety
16 and Health Administration regulates safety in the
17 workplace?
18 A. Yes.
19 Q. Are you aware that OSHA regulated asbestos
20 exposure since 1971?
21 A. I didn't recall the exact date, but that
22 certainly makes sense.
23 Q. I believe you have consulted with OSHA on
24 smoking and health issues?
25 A. Yes.
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1 Q. What exactly have you done for OSHA?
2 A. When they were putting forth their indoor
3 air regulations with respect to environmental tobacco
4 smoke, I testified on behalf of OSHA at the hearing,
5 talking about environmental tobacco smoke exposure and
6 quantitative measures for that, what people were
7 exposed to, and the validity of the biomarkers that we
8 used to quantitate environmental tobacco smoke
9 exposure.
10 Q. Do you have copies of your transcript of
11 your testimony on that? I don't think that was listed
12 on the list of prior testimony.
13 A. I might.
14 Q. Could you provide us with that?
15 MR. FLERLAGE: Just send that over, if you
16 find that; or if you can't, let us know.
17 THE WITNESS: But I can tell you also that
18 most of that testimony I converted to a publication
19 that was published, that talked about the use of
20 cotinine as a marker for environmental tobacco smoke,
21 and that was basically the same testimony I gave for
22 OSHA, but it was published in the journal called
23 Epidemiologic Reviews.
24 MR. SMITH: Q. Did you form your views
25 about the addictive properties of nicotine before the
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1 surgeon general's report came out in 1988?
2 A. Did I think nicotine was addictive before
3 that?
4 Q. Yeah, before 1988.
5 A. Yeah.
6 Q. Did you form views about smoker
7 compensation, before the surgeon general's report came
8 out in 1988?
9 A. Yes. I published work in the early '80s in

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10 that area, experimental research work on my own.
11 Q. And smoker compensation was an area where a
12 lot of studies were published in the early 1980s?
13 A. Yes.
14 Q. And scientists were debating issues about
15 smoker compensation throughout the 1980s?
16 A. Yes.
17 Q. You have published articles about how
18 smokers seek to dose themselves with nicotine and
19 change their smoking behavior to get desired doses of
20 nicotine before the surgeon general's report came out
21 in 1988, is that correct?
22 A. Yes.
23 Q. And smoker compensation was one of the
24 important topics covered by the 1981 surgeon general's
25 report, is that right?
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1 A. Yeah. There wasn't as much data available,
2 but it was discussed back then.
3 Q. Obviously nicotine addiction was a topic of
4 a lot of discussion before the surgeon general's
5 report came out in 1988, right?
6 A. Yes.
7 Q. You also had published articles on the
8 synergistic -- or mentioned the synergistic effects of
9 asbestos and cigarette smoke before the surgeon
10 general's report came out in 1988; that's correct too?
11 A. Yes.
12 Q. And would you agree that the synergistic
13 effects of asbestos exposure and cigarette smoke were
14 the subject of extensive published research and public
15 health concern prior to the 1988 surgeon general's
16 report?
17 A. Yes.
18 Q. And you were involved in testifying on
19 behalf of smokers against the tobacco companies before
20 the surgeon general's report came out in 1988; is that
21 accurate?
22 A. I don't remember, actually.
23 Q. Actually the Horton case; do you remember
24 testifying in deposition?
25 A. What year was that?
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1 Q. I think it was in 1987 that you gave
2 testimony in Horton. Well, you don't dispute the fact
3 that you were testifying against the tobacco companies
4 before the surgeon general's report came out in 1988?
5 MR. FLERLAGE: Objection.
6 THE WITNESS: That's correct.
7 MR. SMITH: Q. And you gave testimony in
8 those cases against the tobacco industry, consistent
9 with what you're planning to testify in these cases?
10 A. Yes.
11 Q. Is it true that you've received funding for
12 some of your research from the tobacco industry
13 through the Council for Tobacco Research?
14 A. I don't know. The only research study that
15 I participated in was one that the principal
16 investigator was Dr. Calloway, and I think he got his

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17 money directly from Philip Morris or -- I'm not
18 sure -- R.J. Reynolds. I forget where, but I don't
19 think it was from CTR.
20 I personally never had a grant from CTR.
21 MR. SMITH: Well, I'm going to give you a
22 copy of this, Exhibit No. 29.
23 (Defendants' Exhibit 29 was
24 marked for identification)
25 MR. SMITH: Q. Exhibit 29 is an article
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1 that you co-wrote with some other researchers.
2 MR. FLERLAGE: Do you have another copy of
3 that?
4 MR. SMITH: Sorry about that.
5 Q. I just have one question about that. The
6 article is entitled Contribution of Adrenal Hormones
7 to Nicotine-Induced Inhibition of Synovial Plasma
8 Extravasation in the Rat, and that's an article you
9 coauthored, right?
10 A. Yes.
11 Q. Just if you turn back to the page 303, in
12 the acknowledgments it says that the research was
13 supported by a grant from CTR.
14 A. Actually, I never knew that until just now.
15 Q. So you acknowledge that you published
16 research by you and your coauthors which was supported
17 by CTR, is that right?
18 A. Yes. I learn something all the time.
19 Q. Do you know if Dr. Henningfield has
20 received any funding from the tobacco industry?
21 A. I have no idea.
22 MR. SMITH: Do you want to take a break
23 yet?
24 (A discussion was held off the record)
25 MR. SMITH: Q. You've had an opportunity
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1 to meet a number of scientists who have designed
2 cigarettes for the tobacco company, right?
3 A. I'm not sure if they designed cigarettes.
4 I know a few tobacco company scientists,
5 and I mentioned three of them before.
6 Q. Who would those be?
7 A. Don DeBethizy and David Townsend from R.J.
8 Reynolds, and Richard Karchman from Philip Morris.
9 Q. And you agree that there are a lot of
10 tobacco company scientists who smoke, right?
11 MR. FLERLAGE: Objection.
12 THE WITNESS: I don't know if those three
13 smoke or not. I have no idea. I think there are some
14 who smoke, because once I was visiting DeBethizy at
15 R.J. Reynolds, and everyone at the seminar was smoking
16 Premiers, which were available -- they were off the
17 market, but they were available to employees only from
18 old stashes.
19 MR. SMITH: Q. So you agree that there are
20 a lot of tobacco company employees that are smokers
21 themselves, right?
22 MR. FLERLAGE: Objection.
23 THE WITNESS: There are some.

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24 I don't know how many.
25 MR. SMITH: Q. Have you looked at any of
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1 the deposition transcripts in any of the cases you're
2 here for today?
3 A. No.
4 Q. Can you think of any areas of your
5 testimony you're planning to offer in which your
6 opinions would differ from those of Dr. Henningfield?
7 A. I doubt it. His thoughts and my thoughts
8 about most things are pretty similar.
9 Q. You're a member of the Tobacco Control
10 Program at the University of California where you
11 teach, right?
12 A. Yeah. It's the cancer center.
13 Q. But you're a member of the Tobacco Control
14 Program there?
15 A. Yes.
16 Q. Have you reviewed any documents from the
17 Johns-Manville Trust?
18 A. No.
19 Q. The lawyers for the trust haven't given you
20 any documents for you to review?
21 A. The only documents that I've reviewed are
22 the ones that I mentioned, which came from Angelos
23 firm, and those were the defense experts' statements.
24 Q. Do you know why I'm asking you about the
25 Johns-Manville Trust?
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1 A. No.
2 Q. Do you know which case the Johns-Manville
3 Trust is in?
4 A. It's the case that Mr. Stolper is involved
5 with, but I don't know...
6 Q. You don't know the name of that case?
7 A. I think you were talking about Falise
8 before. What you were talking about is Falise before.
9 Q. Do you know what the Johns-Manville Trust
10 is?
11 A. To the best of my understanding, there was
12 a trust that was set up to pay claims against the
13 asbestos industry for asbestos-related disease, and
14 those claims were paid by a trust.
15 And that's my understanding.
16 Q. Can you name any of the people who work for
17 the Johns-Manville Trust?
18 A. No.
19 Q. Have you done any research on what people
20 who run the Johns-Manville Trust knew about the health
21 risks associated with smoking?
22 A. No.
23 Q. Have you done any research on what the
24 people who run the Johns-Manville Trust knew about the
25 conduct of the tobacco companies?
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1 A. No.
2 Q. Have you done any research on what the

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3 people who run the Johns-Manville Trust knew about the
4 addictiveness of tobacco smoking?
5 A. No.
6 Q. Have you done any research on what
7 employees of any of the asbestos companies knew about
8 the health effects of smoking?
9 A. No.
10 Q. Did you ever ask for any information along
11 those lines from the lawyers for the Johns-Manville
12 Trust?
13 A. No.
14 Q. Did the lawyers for the trust ever offer
15 you any documents or evidence concerning what
16 employees of the asbestos companies knew about the
17 health effects of smoking?
18 A. No.
19 Q. Have you done any research on what
20 employees of the asbestos companies knew about the
21 conduct of the tobacco companies?
22 A. No.
23 Q. The lawyers for the Johns-Manville Trust
24 never asked you to look at those issues?
25 A. No.
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1 Q. Would you agree that if asbestos companies
2 withheld information from the public concerning the
3 health effects of their products, they should be held
4 accountable for that?
5 MR. STOLPER: Objection.
6 MR. FLERLAGE: Objection.
7 MR. McDONNELL: What about Blue Cross?
8 There's no objection.
9 THE WITNESS: That's not my issue here, but
10 as a general principle I would say yes, but I'm not
11 going to testify about that.
12 MR. SMITH: Q. You would agree that if the
13 asbestos companies issued deceptive or misleading
14 statements about their products, they should be held
15 accountable for that?
16 MR. STOLPER: Objection. I'm going to
17 instruct the witness not to answer. Beyond the scope.
18 MR. SMITH: On what grounds?
19 MR. STOLPER: Beyond the scope. He's an
20 expert. He didn't offer an opinion on that.
21 MR. SMITH: Q. Have you ever heard of the
22 Sumner-Simpson papers, S-U-M-N-E-R, S-I-M-P-S-O-N?
23 A. No.
24 Q. The lawyers for the Johns-Manville Trust
25 haven't told you about the Sumner-Simpson papers?
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1 A. No.
2 Q. Do you plan to ask them about them?
3 A. Not unless it's something I should know
4 about for my testimony.
5 Q. Have you heard of Dr. Kenneth Smith?
6 A. No.
7 Q. Have the lawyers for the Johns-Manville
8 Trust ever told you who Kenneth Smith is?
9 A. No.

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10 MR. FLERLAGE: How about Paul Kotin?
11 MR. SMITH: Q. Yeah, how about Paul Kotin,
12 do you know who he is? That's K-O-T-I-N.
13 A. I know Paul Kotin. I've met him.
14 Q. And when did you meet Paul Kotin?
15 A. He was at UC San Francisco as a visiting
16 lecturer back in the '70s, I think.
17 Q. Did you ever discuss any tobacco-related
18 issues with Paul Kotin?
19 A. No, I don't think so.
20 Q. Did you ever discuss asbestos-related
21 issues?
22 A. No. We did discuss tobacco-related issues,
23 because at that time I was interested in workplace
24 smoking policies, and so I wanted to get from him --
25 and he sent me information -- about what
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1 Johns-Manville did about smoking policies for their
2 employees.
3 Q. And when was this?
4 A. I don't remember the exact date, but maybe
5 in the '70s. And he told me how Manville developed
6 their nonsmoking policy and what they did to help to
7 deal with current smokers and how they stopped hiring
8 new employees who were smokers, and things like that.
9 So we had quite a discussion about that.
10 Q. Did Mr. Kotin tell you why Johns-Manville
11 decided to employ all those smoking measures?
12 A. Yeah, because of the issue about the
13 interaction between asbestos and cigarette smoking for
14 lung cancer, which I knew at the time, but I was very
15 interested and I still teach in an occupational
16 medicine course about workplace tobacco control
17 measures, and I talk about Johns-Manville as sort of
18 the first place that dealt with that question.
19 Q. Have you ever had any discussions with
20 anybody at OSHA about tobacco smoking and asbestos?
21 A. No.
22 Q. How about -- have you had any discussions
23 with John Pinney, P-I-N-N-E-Y, about tobacco smoking
24 and asbestos?
25 A. I've talked to John about lots of things
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1 about tobacco, but never asbestos.
2 Q. Do you have a copy of your expert report in
3 National Asbestos Workers? I think you were asked
4 some questions about it earlier.
5 A. Yes.
6 MR. FLERLAGE: The one we talked about
7 earlier? Here's a copy of it.
8 MR. SMITH: I just mean his expert report
9 from...
10 MR. FLERLAGE: Okay, I'm sorry.
11 (Defendants' Exhibit 30 was
12 marked for identification)
13 MR. SMITH: Q. Before I ask you questions
14 about that, have you ever discussed the interaction
15 between smoking and asbestos with any people that work
16 for unions?

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17 A. Well, I don't know. The only time -- not
18 on a personal level. I do discuss it when I give
19 lectures on workplace smoking control, and I talk
20 about reasons why it's really imperative to control
21 smoke in the workplace, and I use asbestos as an
22 example. There could be union people there -- I don't
23 know -- but I've never had a conversation with people
24 I knew was part of an asbestos union.
25 Q. Do you know if that's an issue that unions
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1 are concerned about?
2 A. I have no idea.
3 I hope so, but I have no idea.
4 Q. You see in your expert report that it
5 indicates it's for the Maryland tobacco litigation?
6 A. Yes.
7 Q. Is the expert report you submitted for the
8 National Asbestos Workers case basically the same as
9 the one you submitted for the Maryland attorney
10 general litigation, or did you make any changes?
11 A. Yes. No, this is the same.
12 Q. So the opinions you plan to offer in the
13 National Asbestos Workers case are the same as those
14 you had planned to offer in the Maryland attorney
15 general case?
16 A. Yes.
17 Q. Do you have any prior drafts of that expert
18 report?
19 A. No. I think the prior drafts would have
20 been previous expert reports, but I don't have any
21 that are marked, in terms of changes.
22 Q. Do you have anything to add to your CV that
23 you've provided to us in any of the three cases?
24 A. What's the year on this one? Yeah, I've
25 got an updated CV which you can have, which...
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1 MR. SMITH: Maybe we should mark that as an
2 exhibit, if you don't mind.
3 THE WITNESS: Actually, I picked up the
4 wrong one. There is one that has more recent
5 references, but I think I have -- I think I picked up
6 the wrong one. There's one that has some 1999
7 references. This one only has the 1998.
8 MR. FLERLAGE: How about updating it on the
9 record right now. Can you do that?
10 THE WITNESS: I'll just give you this one,
11 but then I'll have to send you a few pages that have
12 some updated references.
13 MR. SMITH: That would be great.
14 Why don't we mark that as Exhibit 31.
15 (Defendants' Exhibit 31 was
16 marked for identification)
17 (A discussion was held off the record)
18 MR. SMITH: Q. You were involved in an FDA
19 analysis of cigarettes you worked on with
20 Dr. Henningfield?
21 A. Yes.
22 Q. Do you have any documents or other
23 materials relating to that FDA analysis that you

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24 worked on?
25 A. No. My lab really didn't do the actual
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1 analyses of cigarettes. The analyses were done by
2 FDA. I sent them copies of our papers where we had
3 studied it before, and I talked to Dr. Kessler about
4 it, but I didn't -- there were no data of ours that
5 were sent to --
6 MR. FLERLAGE: For clarification, are you
7 talking about what resulted in the '96 report?
8 MR. SMITH: Yeah, the rule making.
9 Q. I think maybe you're a little bit confused.
10 Didn't you work on drafting the rules
11 regulating cigarettes as drug delivery devices, or am
12 I incorrect about that?
13 A. No, I did not work on those rules. I did
14 not have a direct role in those rules.
15 Q. What did you work with Dr. Henningfield on
16 that involved the FDA, just so I understand what you
17 were talking about previously?
18 A. Well, I didn't really work with
19 Dr. Henningfield. I talked to Dr. Kessler. He called
20 me. We had a couple of conversations about my
21 understanding about nicotine content, tobacco.
22 What I did do with Dr. Henningfield is he
23 and I developed ideas about regulatory strategies that
24 FDA might adopt, and so we wrote the one in the New
25 England Journal of Medicine paper, I think in '86, and
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1 then we were both involved in the follow-up AMA paper
2 in 1989 or '88. So we were very interested in the
3 question of FDA becoming involved in the tobacco
4 regulation, but he worked on the rule, I didn't work
5 on the rule.
6 Q. I think that clarifies things for me.
7 You did work on the 1988 surgeon general's
8 report, though, that's right?
9 A. Yes.
10 Q. And you're relying on the 1988 surgeon
11 general's report for your opinions in this case?
12 A. Yes.
13 Q. And you were senior editor of the 1988
14 report and were involved in drafting sections of the
15 report, is that correct?
16 A. Yes.
17 Q. Do you have any documents or other
18 materials regarding your work on the 1988 surgeon
19 general's report?
20 A. No.
21 Q. Why is that?
22 Did you ever have any documents?
23 A. We had reams of documents, because we got
24 all the drafts and we wrote drafts and wrote them over
25 again and read them over again and wrote them like
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1 five times, but it was just boxes and boxes of paper.
2 And when a report is done, you're just so

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3 glad to get it done that everything else just went.
4 Q. So you threw out all the prior
5 documentation?
6 A. Oh, yeah.
7 Q. Have you done all the work necessary for
8 you to render your opinions in these cases?
9 A. I think so.
10 MR. FLERLAGE: Objection.
11 THE WITNESS: I think so. The only thing
12 that, as I said before, I want to do is before trial
13 just decide which documents I'm going to talk about;
14 but other than that, I think yes.
15 MR. FLERLAGE: Consistent with whatever
16 rules are set up by the Court pretrial, we'll let you
17 know if there are any changes.
18 MR. SMITH: Q. Have you done any further
19 research on your own that you haven't been questioned
20 about at your prior depositions?
21 A. No.
22 (Defendants' Exhibit 32 was
23 marked for identification)
24 MR. SMITH: Q. I'm going to hand you a
25 copy of a document marked Exhibit 32, which is an
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1 internal tobacco company document by Stepney and
2 Gough, G-O-U-G-H, titled Cigarette Consumption and
3 Nicotine Delivery: Experimental and Survey Evidence.
4 That's what's in front of you.
5 A. Yes.
6 Q. And I think you know that Robert Stepney is
7 an outside researcher who has published a number of
8 studies on smoker compensation?
9 A. Yes.
10 Q. Would you agree, from reading that
11 document, that tobacco company scientists collaborated
12 with outside scientists such as Robert Stepney to look
13 at the issue of smoker compensation?
14 A. Yes although this -- I'm not sure what this
15 is. This looks like an internal report. So it looks
16 like there's a collaboration in preparing the report.
17 I don't know whether they ever were
18 published together -- they ever published together.
19 Q. If you turn to page seven of the document,
20 it states, "The conclusion drawn on the basis of
21 experimental investigations of controlled
22 brand-switching is that reductions in nicotine
23 delivery of about one-half can be expected to lead to
24 a stable and not immoderate increase in consumption of
25 around six percent."
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1 MR. FLERLAGE: Objection.
2 MR. SMITH: Q. Do you see that?
3 A. Yes.
4 Q. Would you agree, based on this document,
5 that the tobacco company researchers concluded that a
6 50 percent reduction in deliveries might result in a
7 six percent increase in intake?
8 MR. FLERLAGE: Objection.
9 MR. STOLPER: Objection.

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10 THE WITNESS: Well, that's what these two
11 particular individuals thought. I don't know if
12 that's what the tobacco company thought in general.
13 MR. SMITH: Q. But this particular
14 research study would be an example of a partial or
15 incomplete compensation?
16 MR. FLERLAGE: Objection.
17 MS. McDEVITT: Objection.
18 THE WITNESS: Right, but this -- this is
19 not a -- let me just clarify something, in terms of
20 technical use of a research study. This is really a
21 review of research; it's not primary research, though.
22 And I know sometimes you talk about
23 literature researches also being research about, so
24 it's in that context. But this is not primary
25 research, this is just review of published articles.
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1 MR. SMITH: Q. So you would agree that
2 BAT Co scientists determined that compensation was
3 incomplete, after reviewing the literature on smoker
4 compensation?
5 MR. FLERLAGE: Objection.
6 MS. McDEVITT: Objection.
7 MR. STOLPER: Objection.
8 THE WITNESS: Well, they did in this
9 document. I also need to just add as a caveat, you
10 can't just look at cigarette consumption, because we
11 find that in some of our studies that there are two
12 ways to compensate: One is to smoke more cigarettes,
13 the other way is to inhale more intensely, and
14 actually the latter is done more, to a greater extent,
15 than the former. So compensation is -- occurs by two
16 different mechanisms. This only looked at one.
17 MR. SMITH: Q. Have you done any search of
18 the tobacco company documents that -- to find any
19 other documents indicating that the tobacco company
20 scientists thought that compensation was incomplete?
21 MR. STOLPER: Objection.
22 THE WITNESS: I haven't done a search, but
23 there are other documents that discuss compensation,
24 and I think we talked about some already.
25 MR. SMITH: Q. Do you agree that society
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1 cannot completely eliminate all health risks?
2 A. Yes.
3 Q. Do you agree that there may be very
4 significant costs to society when it attempts to
5 reduce health risks?
6 A. Yes.
7 Q. Do you agree that public health officials
8 have a duty to warn children and others about the
9 health risks associated with smoking?
10 A. Yes.
11 Q. Do you agree that teachers and educators
12 have a duty to educate children about the health risks
13 associated with smoking?
14 A. Yes.
15 MR. FLERLAGE: Objection.
16 THE WITNESS: Yes.

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17 MR. SMITH: Q. Do you agree that
18 physicians such as yourself have a duty to warn their
19 patients about the health risks associated with
20 smoking?
21 A. Yes.
22 Q. And you do warn your patients about that?
23 A. Yes.
24 Q. Do you agree that when public health
25 officials working for the government have information
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1 about health risks associated with smoking, they have
2 a duty to make the public aware of that information?
3 A. Yes.
4 Q. Public health officials have communicated
5 information to the public about the health risks
6 associated with smoking through publications such as
7 the surgeon general's reports?
8 A. Yes.
9 Q. Scientists have published a massive amount
10 about smoking and addiction, for example?
11 MS. McDEVITT: Objection.
12 MR. FLERLAGE: Objection.
13 THE WITNESS: Yes, there's been a lot
14 published. It's always hard to use the term
15 "massive," but certainly there's been a lot of work.
16 MR. SMITH: Q. There have been probably
17 thousands of articles published on nicotine and
18 addiction?
19 A. I don't know how many, but there's a lot.
20 Q. You've published a number of articles on
21 nicotine and addiction, right?
22 A. I added to the pile, that's right.
23 Q. Would you agree that public health
24 authorities review the published scientific research
25 concerning smoking in order to inform themselves of
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1 recent findings?
2 MR. FLERLAGE: Objection.
3 THE WITNESS: Yes.
4 MR. SMITH: Q. Would you agree that other
5 outside scientists also review the published
6 scientific research concerning smoking in order to
7 inform themselves of recent findings?
8 MR. FLERLAGE: Objection.
9 THE WITNESS: I think that's likely.
10 MR. SMITH: Q. Would you agree that
11 government agencies, such as the Department of Health
12 and Human Services and the surgeon general's office,
13 review the published scientific research concerning
14 smoking in order to inform themselves of the findings?
15 MR. FLERLAGE: Objection.
16 THE WITNESS: Well, it's actually done
17 systematically through the Office of Smoking and
18 Health, which is part of the CDC, which is within
19 Health and Human Services.
20 But it's not really part of the surgeon
21 general's office, it's a different mechanism.
22 MR. SMITH: Q. But agencies of the federal
23 government do review the published scientific

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24 literature on smoking and health risks, right?
25 A. Yes.
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1 Q. Would you agree that the government is
2 engaged in a large effort to make the public aware of
3 the scientific findings regarding smoking?
4 MR. FLERLAGE: Objection.
5 MS. McDEVITT: Objection.
6 THE WITNESS: There's an effort. It's done
7 at different levels and it varies from state to state,
8 in terms of how big the effort is.
9 MR. SMITH: Q. Would you agree that health
10 authorities and individuals such as yourself also
11 engage in extensive efforts to make the public aware
12 of the scientific findings regarding smoking?
13 MR. FLERLAGE: Objection.
14 THE WITNESS: Many do.
15 MR. SMITH: Q. Would you agree that
16 educators and teachers provide evidence to students in
17 the elementary and high schools about the risks
18 associated with smoking?
19 MR. FLERLAGE: Objection.
20 THE WITNESS: Some do.
21 MR. SMITH: Q. Would you agree that
22 smokers get information from people they know
23 concerning the health risks associated with smoking?
24 MR. FLERLAGE: Objection.
25 THE WITNESS: In some cases, yes.
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1 MR. SMITH: Q. Would you agree that it's
2 common sense that if you suck smoke into your lungs
3 when you're smoking a cigarette, that it won't be good
4 for your health?
5 MS. McDEVITT: Objection.
6 THE WITNESS: Do I think it's common sense?
7 Well, I do, but I'm not sure everybody
8 does. It's hard for me to say.
9 MR. SMITH: Q. And you've done no survey
10 on that?
11 A. No.
12 Q. Would you agree that it's common sense that
13 if you take a big puff on a cigarette you'll be
14 getting more tar and nicotine than if you take a small
15 puff?
16 MR. FLERLAGE: Objection.
17 THE WITNESS: Well, it's probably common
18 sense. A lot of people don't think about the size of
19 the puff they're taking, unless they're sort of forced
20 to, so I don't know that some people are aware of
21 that.
22 MR. SMITH: Q. Would you agree that if
23 someone sees one of their friends trying again and
24 again to quit smoking with no success, that would be
25 evidence to them that it is hard to quit smoking?
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1 A. Yes.
2 Q. Having reviewed your expert reports, I've

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3 concluded that you won't be planning to testify about
4 nicotine analogs. Is that correct or not?
5 MR. FLERLAGE: Objection.
6 THE WITNESS: I could. I hadn't planned
7 to. It's not a major part of my opinion.
8 MR. SMITH: Q. Okay, you've worked with a
9 variety of pharmaceutical companies during the course
10 of your career?
11 A. Yes.
12 Q. And which ones have you worked with?
13 A. Well, ones that are in existence now,
14 Pharmacia, Upjohn, McNeill, SmithKline.
15 Q. For the moment?
16 A. That's right. Alza, Hoechst-Roussel, Alon,
17 Sanno (phonetic). I can't remember if there are
18 others or not.
19 Q. That's all you can identify sitting here
20 today, right?
21 A. Yes.
22 Q. Would you say that your work with
23 pharmaceutical companies has contributed to your views
24 on nicotine dependence and treatment?
25 A. Not so much dependence.
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1 Certainly treatment, because I've been
2 involved in trying to develop more effective
3 treatments and work with them in doing that. Their
4 research has really not been focused so much on
5 addiction, as much as ways to help addicted smokers.
6 Q. Don't you agree, though, that the
7 pharmaceutical companies are concerned that their
8 products might be labeled as addictive?
9 A. Yes.
10 Q. So that's one issue that you've looked at
11 in your nicotine patch research for the pharmaceutical
12 companies?
13 A. Yes.
14 Q. Have you discussed issues relating to
15 nicotine replacement products and tobacco control with
16 pharmaceutical company employees?
17 MR. FLERLAGE: Objection.
18 THE WITNESS: Well, I usually serve as a
19 consultant to them, so I talk to other scientists in
20 the company, yes.
21 MR. SMITH: Q. How long have you served as
22 a consultant to pharmaceutical companies that
23 manufacture nicotine replacement products?
24 A. At least ten years.
25 Q. And how much of your time is spent on doing
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1 the consulting work?
2 A. A pretty small amount. I would say, you
3 know, on average no more than a percent or two a year.
4 Q. And has that been the consistent amount of
5 time throughout your career?
6 A. I would say so.
7 Q. But you've testified on behalf of a number
8 of pharmaceutical companies in other litigation, is
9 that right?

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10 A. Yes.
11 Q. One case you testified in was the Effler
12 case, E-F-F-L-E-R, is that correct?
13 A. Yes.
14 Q. In the Effler case you testified that a
15 pharmaceutical company need not put a warning on its
16 product that describes every possible adverse health
17 consequence associated with the product?
18 A. Yes.
19 Q. And you agree that manufacturers need not
20 put explicit warnings on their products concerning
21 every possible adverse health effect?
22 MR. FLERLAGE: Objection.
23 THE WITNESS: Yes, that... that case was a
24 very weird, never before reported, side effect.
25 It was a very strange situation. But in
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1 general I think yes, you need to weigh the frequency
2 and the severity of the side effects, versus the
3 readability of the label.
4 Q. And what exactly was the adverse health
5 effect in Effler?
6 A. That was penile sympathetic dystrophy.
7 Q. And what's that?
8 A. Well, sympathetic dystrophy is a situation
9 where if you have nerve damage, you can get intense
10 pain seen after trauma, injuries, sort of like phantom
11 pain.
12 Q. So in the Effler case you talked about, I
13 believe, the Today sponge causing severe pain?
14 A. No, no. The plaintiff said that because a
15 woman with whom he had sex once used a certain sponge,
16 that he developed penile sympathetic dystrophy, which
17 had never been reported before nor after, and there's
18 good physiologic reason to believe it would never
19 occur. And he was suing the manufacturer of the
20 sponge for causing it and not warning about it.
21 It was a totally ridiculous case.
22 Q. Well, isn't it true that evidence was
23 introduced that the chances of getting that condition
24 was approximately one in 25?
25 A. No. Absolutely not. It was never reported
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1 before, never reported after, and I don't think that
2 entity exists. That case was totally ridiculous.
3 Q. What happened with that case, just out of
4 curiosity?
5 A. It was a defense verdict.
6 Q. Did you testify at trial or not?
7 A. Yes.
8 (A recess was taken from 5:39 to 5:46 p.m.)
9 MR. SMITH: Q. Besides Paul Kotin of
10 Manville, are there any other people you know of who
11 were employees of asbestos companies?
12 A. No.
13 Q. And I think Dr. Kotin's published a number
14 of articles on asbestos.
15 Have you reviewed any of those?
16 A. I reviewed his -- I think he published

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17 something on tobacco policies and studies, and he sent
18 it to me. I think he sent me a copy of that.
19 It was a document about what they did with
20 document control at Johns-Manville. I think that's
21 the only thing I read of his.
22 Q. Did you discuss with Dr. Kotin getting the
23 federal government to put into place any regulations
24 to implement smoking controls in the workplace?
25 A. No.

1 Q. Other than the Effler case, have you
2 testified in any other cases concerning the
3 sufficiency of warnings on pharmaceutical products?
4 A. Yes. I think so. I testified in a couple
5 of cases involving Reye Syndrome in deposition,
6 talking about warnings. I'm trying to think if there
7 were other cases. There's one case I testified about
8 phenylpropanolamine, which is a drug used as a diet
9 medication that has been implicated in strokes, and I
10 testified about a problem with the warning for that
11 drug. So that was a plaintiff's case, the Reye
12 Syndrome case was a plaintiff's side, the other one
13 was a plaintiff's side. And then I've testified in
14 silicone breast implant cases for the defense,
15 although that really wasn't warnings; that was about
16 causation of breast cancer. I think that's all I've
17 testified in. That's all I can recall.
18 Q. Do you know if those cases would have been
19 listed on your disclosure?
20 A. Yes.
21 Q. Do you recall the names of any of them or
22 not?
23 A. Not offhand.
24 (Defendants' Exhibit 33 was
25 marked for identification)

1 MR. SMITH: Q. I'm handing you a copy of
2 what I've marked as Exhibit 33, which is an article
3 entitled Reducing the Addictiveness of Cigarettes,
4 published in Tobacco Control in 1998.
5 Do you have that in front of you?
6 A. Yes.
7 Q. And you coauthored that with Jack
8 Henningfield and John Slade and a variety of other
9 authors, right?
10 A. Yes.
11 Q. In the second paragraph of the AMA report
12 published in Tobacco Control, you state, "One
13 opportunity to induce remission from smoking, then, is
14 to make existing nontobacco nicotine delivery systems
15 more accessible and attractive to consumers and to
16 develop even more acceptable, pure nicotine delivery
17 systems." Do you see that?
18 A. I know we wrote it, but I can't find it.
19 Where are you looking?
20 Q. I think it's in the second paragraph of the
21 first page.
22 A. The second paragraph of the abstract?
23 Q. Oh, it's on page 284.

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24 It's the last sentence of the first full
25 paragraph on page 284, in the first column.
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1 MR. FLERLAGE: There it is.
2 THE WITNESS: Oh, okay. I see it.
3 MR. SMITH: Q. Do you see it now?
4 Do you advocate that the government adopt
5 policies that make existing nicotine replacement
6 products more accessible and attractive to consumers?
7 A. Yes.
8 Q. Do you advocate that pharmaceutical
9 companies develop more acceptable pure nicotine
10 delivery systems?
11 A. Yes.
12 Q. On the bottom of page 285 you state, "The
13 lack of precision in (the) ability to determine an
14 absolute threshold below which addiction is unlikely
15 to occur and above which addiction readily occurs
16 should not pose any more of an obstacle than the
17 analogous problem of determining maximum allowed
18 alcohol content for nonalcoholic beer or the maximum
19 levels of contaminants permitted in food products."
20 Do you see that?
21 A. No. Where is it?
22 Q. It's on page 285, at the bottom.
23 A. Yes.
24 Q. It's in the first column.
25 A. Yes, I see it.
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1 Q. You see that statement?
2 A. Yes.
3 Q. Do you agree that scientists have not been
4 able to establish with precision an absolute threshold
5 nicotine dose below which addiction is unlikely to
6 occur, and above which nicotine addiction readily
7 occurs?
8 A. That's correct.
9 Q. Also on page 285 of the Tobacco Control
10 article you state, "More recently, as part of a
11 contract with the National Institute on Drug Abuse,
12 small consumer-products companies are developing
13 cigarettes that are similar in many sensory
14 characteristics to conventional cigarettes but have
15 extremely low levels of nicotine." Do you see that?
16 A. Yes.
17 Q. Do you know which companies are developing
18 cigarettes with extremely low levels of nicotine?
19 A. Well, there were two companies. One... I
20 forgot what the company is called. I think the guy's
21 name is Billy Rosen. I think that's his name. I
22 forgot the name of his company. And the other one is
23 a company that's... I can't think of his name. He's
24 an Indian Ph.D., Indian from Asian -- Asia India. I
25 forgot his name, but they're two companies that have
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1 been making cigarettes with the low-nicotine content.
2 Q. And have you had conversations with people

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3 at those companies about their work?
4 A. Yes.
5 Q. And they told you about that project?
6 MR. FLERLAGE: Objection.
7 THE WITNESS: Well, I've been interested in
8 working with them because we're doing research on the
9 safety of cigarettes with reduced nicotine content,
10 and so I talked to them to see if they could
11 manufacture cigarettes for my research.
12 MR. SMITH: Q. And have they provided you
13 with any cigarettes?
14 A. They're in the process of making them.
15 Q. Do you know when they'll be able to produce
16 cigarettes with low nicotine?
17 A. Hopefully by the end of this year.
18 Q. So you don't expect to do any research you
19 would testify about at trial on the low-nicotine
20 cigarettes?
21 A. No.
22 Q. Are you involved --
23 A. Let me just say that the name of the second
24 person is Dr. Ram Murty, M-U-R-T-Y, and his company is
25 called Murty Pharmaceuticals.
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1 Q. Do you know if they're going to seek to get
2 FDA approval of their cigarettes with low-nicotine
3 levels?
4 A. I don't think they're doing that at this
5 stage. They're not really into manufacturing
6 commercial cigarettes. They're making them for
7 research purposes.
8 Q. Are you involved at all in their effort to
9 manufacture cigarettes with low nicotine levels, other
10 than just communicating with them?
11 A. Well, I've met with them.
12 I told them what kind of cigarettes we'd
13 like, I made suggestions about how they should be
14 tested, machine tested, before we human test them.
15 Q. Is Dr. Henningfield involved in the efforts
16 to develop low nicotine cigarettes?
17 A. He was. I don't think he's involved
18 currently. I'm not sure.
19 Q. If you turn to page 286 of the Tobacco
20 Control report, under the heading dealing with safety
21 and toxicity in the second column, you state,
22 "Although this is possible, addiction to nicotine
23 without exposure to tobacco combustion-products is
24 greatly preferable to smoking." Do you see that?
25 A. Yes.
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1 Q. Would you agree that nicotine -- addiction
2 to nicotine replacement products would be preferable
3 to smoking?
4 A. Yes.
5 Q. On page 287 of the Tobacco Control report,
6 in the last paragraph in the first column you state,
7 "Moreover, it is possible that, in the future, a
8 variety of medical disorders will be treated with
9 medications containing nicotine or nicotine analogs."

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10 Do you see that?
11 A. No.
12 Q. I think it's on page 287. It's in the
13 middle of the last paragraph, in the first column.
14 A. Yes, I see it.
15 Q. Do you agree that in the future a variety
16 of medical disorders will be treated with medications
17 containing nicotine?
18 A. Or nicotine analogs, yes.
19 Q. Now I'm on page 288 of the Tobacco Control
20 report, in the first column under the heading
21 Alternate Nicotine-Delivering Medicines, you state,
22 "Alternate forms of nicotine delivery should be at
23 least as accessible as cigarettes." Do you see that?
24 A. Yes.
25 Q. And it's your position that nicotine
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1 replacement products should be at least as acceptable
2 as cigarettes?
3 A. Yeah. This has "accessible," but the
4 answer is yes.
5 Q. To which maybe I better clarify the record
6 a little bit. Do you agree that nicotine replacement
7 products should be at least as accessible as
8 nicotine -- as cigarettes?
9 A. Yes.
10 Q. Do you agree that whenever a nicotine
11 researcher receives money from the tobacco industry,
12 the researcher should disclose that fact when
13 presenting opinions relating to nicotine?
14 A. Yes.
15 Q. Would you agree that it's important for
16 scientists to disclose the sources of their funding
17 because of potential conflicts of interest?
18 A. Yes.
19 Q. Scientists routinely disclose the funding
20 they receive when they publish articles in scientific
21 journals?
22 A. Yes.
23 Q. Would you agree that whenever a nicotine
24 researcher receives money from the pharmaceutical
25 industry, the researcher should disclose that fact
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1 when presenting his opinions relating to nicotine?
2 A. Yes.
3 Q. In fact, the Society for Research on
4 Nicotine and Tobacco has a policy that researchers
5 must disclose the sources of the financial support for
6 their research when it is presented at any NSRT venue?
7 A. Yes.
8 Q. Have you ever told any of the juries that
9 you've testified in front of during tobacco litigation
10 that you also do research work on nicotine replacement
11 products for pharmaceutical companies?
12 A. I don't know. It might have come up. I'm
13 not sure that I -- I think I've been asked about it.
14 Q. But you haven't voluntarily stated that at
15 the outset of your testimony, to your recollection?
16 A. I don't recall.

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17 (Defendants' Exhibit 34 was
18 marked for identification)
19 MR. SMITH: Q. I'm going to mark one thing
20 as Exhibit 34. It's a copy of American Society of
21 Addiction Medicine. It's the 11th National Conference
22 on Nicotine in 1998. That's what's in front of you.
23 A. Yes.
24 Q. Were you involved in planning the 1998
25 American Society of Addiction Medicine conference?
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1 A. Was I involved in planning it?
2 Q. Yes.
3 A. No.
4 Q. You attended the conference?
5 A. I... Yes. I spoke at it.
6 Q. If you turn to page 11, do you see under
7 the heading Workshop 3B, Richard Hurt and Channing
8 Robertson gave a workshop titled Tips on Being an
9 Expert Witness in a Tobacco Trial?
10 A. Yes.
11 Q. Did you attend that workshop?
12 A. No.
13 Q. Can you list who the plaintiffs are in the
14 National Asbestos Workers case?
15 A. No.
16 Q. How about in the Blue Cross case?
17 A. Blue Cross or Blue Shield, maybe.
18 I don't know.
19 Q. Do you know if... Do you know if those are
20 two separate companies or not?
21 A. I'm not sure. I know they're talked about
22 as the Blues, but whether they are -- how they're
23 organized, I don't know.
24 Q. Have you done any specific work for the
25 Falise case?
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1 A. No.
2 Q. Have you communicated with any of the
3 attorneys in the Falise case?
4 A. Mr. Stolper, I guess I met with him.
5 Q. When was that?
6 A. Last night. And I also met with -- another
7 attorney from the Orrick firm visited me in my office
8 six or nine months ago. I forget what the name was.
9 I forgot what his name was.
10 Q. Are there any other cases that you know of
11 that you've been listed as an expert since you filed
12 your expert statements in these cases?
13 A. The only other case is the Mississippi
14 case. The attorney is Richard Foreman.
15 Q. Is that the case involving Owens Corning?
16 A. I believe so.
17 Q. And there's also a California case that's
18 related to that Mississippi one.
19 Do you know anything about that case?
20 A. No.
21 I have not been contacted about that one.
22 Q. Have you reviewed any articles published
23 within the last year that are important to your

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24 opinions in this case?
25 A. Just general things about nicotine
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1 addiction. I don't know if there's anything specific.
2 There's been a lot of stuff about receptors
3 and genes controlling receptors and knock-out lights
4 and things like that that sort of amplify the general
5 issue of nicotine addiction, but nothing that I think
6 is specific.
7 Q. Is there any ongoing research that you're
8 aware of being done by any of your colleagues that you
9 think would be significant to the opinions you're
10 going to render in these cases?
11 A. I don't think so.
12 MR. SMITH: Well, maybe we should take a
13 break and figure out if there are any other questions,
14 and maybe we can just end it.
15 THE WITNESS: Okay.
16 (A recess was taken from 6:02 to 6:10 p.m.)
17 MR. SMITH: Q. Dr. Benowitz, have you had
18 any interaction with anybody at the World Health
19 Organization on smoking issues?
20 A. Yes. There's one meeting that was at the
21 World Health Organization about a year ago. It was
22 actually a UNESCO-sponsored meeting that was talking
23 about alternative nicotine medications, which was
24 basically developing nicotine medications as an
25 alternative to smoking and making them more available,
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1 and so that was in Geneva about a year ago. And then
2 I guess that's it for the World Health Organization.
3 Q. Have you ever met Roberta Wallburn before?
4 A. No.
5 MR. SMITH: I don't think I have any other
6 questions.
7 FURTHER EXAMINATION BY MR. McDONNELL
8 MR. McDONNELL: Q. I just have a couple of
9 questions about your dinner last night.
10 Do I understand that you had dinner with
11 Mr. Flerlage, Ms. McDevitt, and Mr. Stolper?
12 A. Yes.
13 Q. And that the Jed Rose article came up?
14 A. Yes.
15 Q. Do you recall who brought it up?
16 A. I did.
17 Q. And do you recall -- I just may draw an
18 objection from Mr. Flerlage -- do you recall what
19 Mr. Flerlage said about it?
20 MR. FLERLAGE: Objection.
21 MR. McDONNELL: Are you going to let him
22 answer?
23 MR. FLERLAGE: No. I think it's
24 inconsequential. Go ahead and ask the question.
25 MR. McDONNELL: Q. Do you recall what
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1 inconsequential remarks Mr. Flerlage made about it?
2 MR. FLERLAGE: Yeah, and I hope you

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3 remember the courtesy.
4 THE WITNESS: I don't think he said
5 anything about it. I was just discussing some of the
6 issues that had come up and my deposition in the
7 Whiteley case, and I just said -- one of the things
8 that we spent time talking about is the Jed Rose
9 article, and so someone said -- I don't know who it
10 was -- that this came up in Dr. Henningfield's
11 deposition as well, and what were my thoughts about
12 it, and I just explained last night what I explained
13 today.
14 MR. McDONNELL: Q. Did any other articles
15 come up during the dinner?
16 A. No. I was just sort of recounting the
17 things that had come up in Whiteley, and that was the
18 only article.
19 Q. You have mentioned, in response to
20 questions from Mr. Smith, a -- I may not have this
21 name right -- Ram Murty, is that right?
22 A. Yes.
23 Q. Is this the fellow who is engaged in or
24 trying to get into the business of manufacturing
25 cigarettes for research purposes?
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1 A. Yes.
2 Q. And you've requested some cigarettes, for
3 research purposes, from Mr. Murty?
4 A. Yes.
5 Q. Have you requested any of the cigarettes
6 that you said you needed to do the pH research, that
7 you were unable to do with the cigarettes that...
8 A. No, he... he's not making cigarettes that
9 are like commercial cigarettes. His approach is
10 different. I don't think he could do that.
11 Q. You don't think he could do what?
12 A. Make cigarettes adding different amounts of
13 ammonia. His technology is basically extracting
14 nicotine from the tobacco and re-adding it.
15 Q. Have you asked him about it?
16 A. No, but I know -- knowing his operation, I
17 don't think that's something that he would have
18 expertise to do.
19 MR. McDONNELL: That's all I have.
20 MR. FLERLAGE: You have the right to read
21 and sign the deposition, and I think what we will
22 suggest that you do is read it; and you'll get copies
23 of the exhibits to review also. Would you do that?
24 THE WITNESS: Yes.
25 MR. FLERLAGE: I'd recommend that.
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1 (Whereupon, the deposition was adjourned at 6:14 p.m.)
2
3 -oOo-
4
5 I declare under penalty of perjury that the
6 foregoing is true and correct. Subscribed at
7 _____, California, this _____ day of
8 _____, 2000.
9

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16 NEAL L. BENOWITZ, M.D.
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1 CERTIFICATE OF REPORTER
2 I, TERRI NESTORE, a Certified Shorthand
3 Reporter, hereby certify that the witness in the
4 foregoing deposition was by me duly sworn to tell the
5 truth, the whole truth and nothing but the truth in
6 the within-entitled cause;
7 That said deposition was taken down in
8 shorthand by me, a disinterested person, at the time
9 and place therein stated, and that the testimony of
10 the said witness was thereafter reduced to
11 typewriting, by computer, under my direction and
12 supervision;
13 I further certify that I am not of counsel
14 or attorney for either or any of the parties to the
15 said deposition, nor in any way interested in the
16 event of this cause, and that I am not related to any
17 of the parties thereto.
18
19 DATED: January 24, 2000
20
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23
24 TERRI NESTORE, CSR 5614
25
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